Program Curriculum Sheets Catalog

Center for Agriscience & Technologies

Center for Agriscience & Technologies (continued)

Information Technology (continued)

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Manufacturing (continued)

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Center of Health & Safety Education (CHASE)

Nursing

Health-Related Professions

Center of Health & Safety Education (CHASE) (continued)

Center for Human and Protective Services

Madison Area Technical College

Effective: 2010-2011

Basic Horticulture

Program Number: 30-001-5

Associate Degree Transfer Program

Agriculture and Natural Resources Program Cluster

Center for Agriscience and Technologies

Courses offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Program

Madison Area Technical College offers eight associate-degree courses dealing specifically with ornamental horticulture- the cultivation and use of plants and flowers to control, beautify and improve our environment.

Although a full associate degree program is not available at Madison Area Technical College, these courses offer students a foundation in horticulture and with additional Madison Area Technical College courses can provide up to 40 credits that can transfer to Gateway Technical College's Horticulture Program in Kenosha, Wisconsin. We recommend communicating directly with Gateway Technical College regarding transfer of credits and other advising on how best to pursue this degree by calling (262) 564-2434.

Students enroll in horticulture courses for varying reasons. Some take one or more courses to explore the field. Others take a few horticulture courses to further training. Others are interested in graduating with an associate degree in horticulture. For those individuals, staff can arrange a specific schedule including general education, business and marketing courses that will transfer to Gateway Technical College. Students planning to pursue an associate degree should contact the Agriscience Department before or at the time of registration.

Horticulture classes, except field trips, are held at the Commercial Avenue Education Center, 2125 Commercial Avenue, during the regular college semester. Three courses are typically offered each semester and are taught in the evening.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

In a typical semester, three courses are offered.

Courses		Credits	Hrs/week Lec-Lab
10-001-111	Introduction to Horticulture	3	2-2
10-001-120	Landscaping -Interior	3	2-2
10-001-134	Turf and Lawn Management	3	2-2
10-001-140	Introduction to Landscape Design	3	2-2
10-001-143	Garden and Bedding Plants	3	2-2
10-001-144	Floral Design 1	3	2-2
10-001-145	Floral Design 2	3	0-6
10-001-155	Garden Center Operations	3	2-2
	Semester Total	**24**	

MADISON AREA | TECHNICAL COLLEGE

Real world smart.

Program Courses

10-001-111 Introduction to Horticulture 3 credits
Introduces plant science and the four branches of horticulture with an emphasis on ornamental horticulture. Covers the structure and function of plants and how they are affected by light, water, temperature, soil, pests, climate and nutrient availability. Labs combine hands-on experience, videos and demonstrations.

10-001-120 Landscaping-Interior 3 credits
Students learn to choose plants to create pleasing and professional interior displays. Includes diagnosing and solving plant problems, drawing plans and writing maintenance contracts. Labs provide hands-on experience.

10-001-134 Turf and Lawn Management 3 credits
Examines how to effectively start and maintain professional appearing lawns/turf. Discusses which grasses to use, turf chemicals, equipment and diagnosing problems. Labs include identification of weeds and several field trips to study various uses of turf.

10-001-140 Introduction to Landscape Design 3 credits
Teaches how to plan and draw a professional landscape design. Focuses on selecting correct plant material, proper placement and uses of landscape construction elements. Lab provides practical design and drawing experience.

10-001-143 Garden and Bedding Plants 3 credits
Covers greenhouse propagation and growing of annual and perennial plants used for bedding plants in landscaping Covers bedding plant identification, culture, landscape use and flower-bed design. Labs include hands-on experience emphasizing proper technique in propagating and transplanting bedding plants, applying growth regulators and controlling pests.

10-001-144 Floral Design 1/Commercial 3 credits
Students practice basic principles, elements and mechanics of floral design. Involves identification, care and handling of flowers and foliages. Includes hands-on designing of corsages, primary arrangements and holiday arrangements.

10-001-145 Floral Design 2/Commercial 3 credits
Covers hands-on use of fresh flowers, fresh foliage, dried materials, silks and fruit in the more advanced floral designs. Includes discussion of color theory and development of floral creativity. Prerequisite: 10-001-144.

10-001-155 Garden Center Operations 3 credits
Covers garden center establishment and operation. Course content includes financial records, merchandising/promotion strategies and the selection/maintenance of quality plant materials. Labs include hands-on experiences and field trips.

Career Potential:

- **Nursery Grower**
- **Greenhouse Grower**
- **Sales and Marketing Representative**
- **Floral Designer**
- **Golf Course Maintenance Worker**

With additional education and/or work experience, graduates may find employment as**:**

- **Landscape Designer**
- **Landscape Maintenance Technician**
- **Interior Plantscaper**
- **Production Supervisor**
- **Floral Shop Owner/Manager**
- **Garden Center Manager/Owner**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

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Farm Business and Production Management

Program Number: 30-090-1

Less-Than-One-Year Diploma

Agriculture & Natural Resources Program Cluster

Center for Agriscience and Technologies

Program offered at Portage, Reedsburg and Western Dane campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Program

The objective of the Farm Business and Production Management Program is to meet the needs of persons who are becoming established in the business of farming. Instruction is planned over a six-year period, but individual enrollment is on an annual basis. Courses include group instruction and workshops at centers throughout the districts. On-farm instruction is pre-scheduled with the instructor.

FSA Borrowers

Individuals with FSA loans may satisfy their advanced training in crop production, livestock management, financial analysis and record keeping through enrollment in the Farm Business and Production Management program. FSA has contracted with the Wisconsin Technical College System to provide these classes.

Farmers with FSA loans with conditional education requirements should contact the nearest technical college for information and registration. The FSA will monitor farmers' progress via technical college reporting.

Unique Requirements for Admission

Enrollment for this program is open to any individual who is beyond high school age and is actively engaged in or about to enter farming. This includes farm owners, operators, renters, partners, managers and hired persons. Both men and women are encouraged to enroll. Many farm couples attend classes together. Enrollees should plan to attend requlary scheduled group instruction sessions and allow time for individual instruction on their farms.

Since training in this program is on a year-round basis, registration can take place at any time. It is advised, however, to enroll during the summer or early fall.

Note: This program does not qualify for federal veteran's benefits.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

Courses		Credits
30-090-381	Operating the Farm Business	3
30-090-382	Soils Management	3
30-090-383	Crop Management	3
30-090-384	Livestock Nutrition	3
30-090-385	Livestock Management	3
30-090-386	Farm Records and Business Analysis	3
	Total	**18**

Unique Requirements for Graduation

To graduate from this program, a student must successfully complete the six required courses, 18 credits.

Program Courses

30-090-381 Operating the Farm Business 3 credits
Emphasizes the management skills and concepts necessary for students to continue farming with today's changing technology and farm business financing. Builds the foundation for other courses in this program. Special emphasis is given to establishing and recording farm business and family goals. Students organize and maintain farm business records, and interpret and analyze the records to assist in making sound farm business management decisions. Students evaluate goals and objectives upon completion of the course.

30-090-382 Soils Management 3 credits
Covers preparation and implementation of a land-use plan and helps students understand soil testing procedures and reports. Students receive instruction on understanding and implementing fertilizer recommendations and budgets. Covers application of farm manures, chemicals, soil conservation practices, and the management and safe use of farm machinery and equipment. Students learn to choose plants to create pleasing and professional interior displays. Includes diagnosing and solving plant problems, drawing plans and writing maintenance contracts. Labs provide hands-on experience.

30-090-383 Crop Management 3 credits
Crop management emphasizes analysis of the farming business and planning cropping practices and strategies to meet student needs. Specific topics relate to variety, selection, planning, pest control, harvesting, storing and marketing. In addition, the farm cropping program is related to the total farm enterprise on a short- and long-term basis.

30-090-384 Livestock Nutrition 3 credits
This course emphasizes the skills, techniques and concepts necessary for sound feeding management. It covers the determination of feed values; the economics of feed; nutritional terminology and requirements; feed consumption of livestock, breeding; understanding feed tag labels for protein, energy, minerals and vitamins; evaluation of base feed and feeding programs; and metabolic diseases of lactating livestock. Not part of nutrition, but also included in this course, is a discussion of how the farm family can deal with stress factors and identify its role in the community.

30-090-385 Livestock Management 3 credits
The livestock management course provides instruction on the various phases of selection, breeding, herd health, raising of replacement stock, and marketing livestock and livestock products. It includes the selection, operation and maintenance of milking, feeding, ventilation, manure handling, equipment and farm buildings.

30-90-386 Farm Records and Business Analysis 3 credits
Instruction emphasizes the practical use of a record system in farm management and financial analysis. It includes the establishment of farm business goals, selection and use of farm credit, farm business arrangements, farm estate planning and farm income taxes. Instruction is provided on the use of computers and/or computer records.

Recommended Elective:

30-090-387 Farm Management Update 3 credits
Because of changing production technology and farm management decisions, established farmers need to receive up-to-date instruction and information on current practices for farm records and analysis, soils, crop management, and livestock nutrition and management. The specific objectives of this course are modified on a yearly basis to meet the needs of area farmers.

Career Potential:

- **Family Farm Operator**
- **Family Farm Owner**

With additional education and/or work experience, graduates may find employment as**:**

- **Dairy Herdsman**
- **General Farm Manager**
- **Field Equipment Operator**
- **Livestock Production Specialist**
- **Crop Production Specialist**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Veterinary Technician

Effective: 2010-2011

Program Number: 10-091-1

Associate in Applied Science Degree

Agriculture & Natural Resources Program Cluster

Center for Agriscience & Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Program

Students are taught the skills and procedures to effectively contribute to the health and well being of veterinary patients. Veterinary technicians, while always working under the supervision of a veterinarian, provide many services. Routine duties include restraint of animals, sample collection, nursing care (IV catheter placement, bandage application, medication administration, etc.), feeding of animals, record keeping, office procedures, and client education and communication. Other skills include administration of anesthesia, surgical nursing, radiographic procedures, dental prophylaxis, clinical pathology procedures and medication preparation. This job requires the physical strength to lift and carry 50 pounds, the ability to distinguish colors, and to have good vision and good hearing.

Upon completion of the program, graduates are eligible to take the Veterinary Technician National Exam (VTNE) administered by the Veterinary Examining Board of the Wisconsin Department of Regulation and Licensing. Receiving a passing score on the VTNE permits the use of the title of Certified Veterinary Technician.

This program is accredited by the American Veterinary Medical Association's Committee on Veterinary Technician Education and Activities.

A completed packet consists of the completed application form, $30 application fee (if not previously paid), high school transcripts, GED/HSED test scores, college transcript(s) and ACT/COMPASS test scores. An incomplete packet will be returned without being considered for admissions. If the transcripts were previously submitted, a new copy(s) needs to be included with the admissions packet.

Unique Requirements for Admission

1) High school graduation or equivalency; 2) high school and post-secondary transcripts; 3) one year of high school algebra, biology and chemistry with a grade of C or better; and 4) satisfactory score on ACT test (or COMPASS or equivalent assessment test prior to admission).

It is recommended that applicants obtain occupational experience with animals prior to applying for admission. Applicants without algebra, biology and chemistry can take these courses at Madison College; however, they must complete them by the end of spring semester for admission the following fall. Courses in accounting, agriculture, math, keyboarding and computer skills may be helpful.

Unique Requirements for Graduation

To succeed in the program, a student must receive a grade of C or higher in all program courses; students who fail to do so, or withdraw while the course is in progress, *may re-enroll in that course only once*.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR

	First Semester	Credits	Hrs/week Lec-Lab
10-091-105	Occupational Preparation	1	1-0
10-091-123	Laboratory Animal Science 1	2	1-3
10-091-170	Veterinary Medical Terminology	2	2-0
10-091-171	Animal Care and Management 1	3	2-3
10-801-195	Written Communication	3	3-0
10-806-105	Principles of Animal Biology	4	3-2
	Semester Total	**15**	

	Second Semester		
10-091-107	Animal Disease 1	2	2-0
10-091-109	Pharmacology 1	2	1-2
10-091-120	Veterinary Clinical Pathology 1	3	1-4
10-091-131	Veterinary Office Procedures 1	1	1-0
10-091-172	Animal Care and Management 2	3	2-2
10-806-178	Life Science Chemistry	5	4-3
	Semester Total	**16**	

Summer Session

10-091-158	Internship (8 weeks/288 hours minimum)	4	40

SECOND YEAR

	First Semester		
10-091-108	Animal Disease 2	2	2-0
10-091-124	Veterinary Clinical Pathology 2	3	2-3
10-091-127	Surgical Nursing 1	3	2-3
10-091-128	Animal Nursing 1	2	1-3
10-091-132	Veterinary Office Procedures 2	1	0-2
10-091-140	Animal Anatomy and Physiology 1	4	2-4
10-801-197	Technical Reporting	3	3-0
	Semester Total	**18**	

	Second Semester		
10-091-110	Pharmacology 2	2	1-2
10-091-121	Veterinary Clinical Pathology 3	4	1-6
10-091-133	Veterinary Office Procedures 3	1	1-0
10-091-152	Surgical Nursing 2	2	1-3
10-091-153	Diagnostic Imaging	2	1-3
10-809-197	Contemporary American Society	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Semester Total	**17**	

Recommended Additional Courses

10-091-114	Animal Behavior	2 credits
10-091-117	Exotic Animal Husbandry	2 credits
10-091-129	Clinical Rotation	2 credits

Note: Students are assessed for correct placement in English or mathematics courses based on their scores on the ACT/COMPASS test or on completion of the appropriate prerequisite(s). Additionally, there may be courses in other subject areas that may use COMPASS scores as prerequisites when reading, writing, chemistry, math, or critical thinking competencies are required.

Program Courses

10-091-105 Occupational Preparation 1 credit
Acquaints new students with the general competencies necessary to be employed as veterinary and laboratory animal technicians. Addresses the student's personal safety, health and stress management. Discusses memberships in professional organizations, certification, licensing. and internship preparation. Briefly discuss animal loss and bereavement.

10-091-107 Animal Disease 1 2 credits
Covers etiology, symptoms, transmission, diagnosis, prevention and control of diseases that are transmissible from animals to humans as well as animals to animals. Reporting requirements and handling of diagnostic samples involving high-exposure diseases are also discussed. Prerequisite: 10-091-170.

10-091-108 Animal Disease 2 2 credits
Covers etiology, symptoms, transmission, diagnosis, prevention and control of common diseases in a wide variety of animal species. Toxic plants and other substances, as well as reporting and monitoring of federally regulated diseases will also be discussed. Prerequisites: 10-091-107 and completion of or concurrent enrollment in 10-091-171 and 10-091-123.

10-091-109 Pharmacology 1 2 credits
Introduction to drugs and other substances used in veterinary medicine. Emphasizes drug usage, client education, measurement, administration, and safe storage of antiparasitics, antiinflammatories, antibiotics and nervous system drugs. Prerequisites: 10-091-170 and 10-091-171.

10-091-110 Pharmacology 2 2 credits
Introduction to drugs and other substances used in veterinary medicine. Emphasizes drug usage, client education, measurement, administration, and safe storage of cardiac, respiratory, gastrointestinal, chemotherapy, ophthalmic and other drugs. Prerequisites: 10-091-109 and 10-091-158.

10-091-120 Veterinary Clinical Pathology 1 3 credits
Students are introduced to laboratory equipment, elementary laboratory procedures and the principles of microscopy, parasitology, urine analysis, hematology and bacteriology. Prerequisites: 10-091-170 and 10-091-171.

10-091-121 Veterinary Clinical Pathology 3 4 credits
Continues to expand upon the principles, procedures and skills learned in Vet. Clinical Pathology 1 and 2, including hematology, parasitology, urine analysis, microbiology, cytology, mycology, virology, serology, immunology and blood chemistries. Will continue to expand upon the use of automated laboratory procedures for hematology and clinical chemistries. Prerequisites: 10-091-124, 10-091-158 and completion of or concurrent enrollment in 10-806-178.

10-091-123 Laboratory Animal Science 1 2 credits
Includes the history of laboratory animal technology and laboratory animal uses. Emphasizes the Animal Welfare Act and other regulations pertaining to the care of laboratory animals. Covers laboratory animal husbandry in depth as students provide care and treatment for a colony of laboratory animals. Prerequisites: completion of or concurrent enrollment in 10-091-105, 10-091-170 and 10-091-171.

10-091-124 Veterinary Clinical Pathology 2 3 credits
Second in sequence of three courses. Students utilize laboratory equipment, including the microscope and complete selected laboratory procedures, including parasitology, mycology, urine analysis, hematology, serology, bacteriology, cytology and blood chemistries. Prerequisites: 10-091-120 and 10-091-158.

10-091-127 Surgical Nursing 1 3 credits
This introductory course to surgical nursing covers surgical instruments, package prep, patient prep, anesthesia, monitoring and post-op care. Prerequisites: 10-091-158 and completion of or concurrent enrollment in 10-091-140.

10-091-128 Animal Nursing 1 2 credits
Designed to build nursing skills learned in 10-091-172, Animal Care & Management 2, with emphasis on large animal anesthetic techniques, surgical preparation and monitoring. Prerequisites: 10-091-181 and completion of or concurrent enrollment in 10-091-127.

10-091-131 Veterinary Office Procedures 1 1 credit
Covers development of appropriate public, client and staff relations; telephone etiquette, making appointments, managing records, client services and education, and personal grooming and attire. Legal requirements for record keeping as well as an introduction to the rules and regulations governing the veterinary and laboratory animal technician will also be discussed. Prerequisites: 10-091-170 and 10-091-105.

10-091-132 Veterinary Office Procedures 2 1 credit
A computer-based course covering office documents, patient records, billing, estimates, etc., using veterinary office software. Prerequisites: 10-091-131 and completion of or concurrent enrollment in 10-091-171.

10-091-133 Veterinary Office Procedures 3 1 credit
Explores in-depth the rules and regulations governing the practice of veterinary technology in Wisconsin. Covers skills necessary to obtain a CVT position including letter and resume writing, interview skills and professional etiquette. Pet loss and grief are also explored. Prerequisites: 10-091-132 and 10-091-158.

10-091-140 Animal Anatomy and Physiology 1 4 credits
Lectures will emphasize terminology, functions, location, identification and organization of anatomical structures that are parts of body systems. Students dissect and study cadavers and tissue specimens from common domestic species. Prerequisite: 10-806-105 or equivalent and completion of or concurrent enrollment in 10-091-171.

10-091-152 Surgical Nursing 2 2 credits
Focuses on the continuation of basic surgical nursing and anesthesia skills. Also covers basic dental prohylaxis, dental radiography and cardiopulmonary resuscitation. Prerequisite: 10-091-127.

10-091-153 Diagnostic Imaging 2 credits
Covers radiology, electrocardiography, ultrasound, endoscopy, and other special imaging procedures and technologies. Prerequisites: 10-091-127 and 10-091-140.

10-091-158 Internship 4 credits
Internship (work experience) is a very important phase of practical training for students enrolled in the program. It generally follows the second semester of classwork in the college summer recess and is conducted during a period of eight weeks (or 320 hours). The student's work is supervised by assigned instructors. Prerequisite: completion of all first-year program courses.

10-091-170 Veterinary Medical Terminology 2 credits
Teaches acceptable veterinary medical terminology for common clinically recognizable diseases, operations, systems and procedures, as well as common medical signs, abbreviations and colloquial vocabulary.

10-091-171 Animal Care and Management 1 3 credits
Focuses on handling and husbandry of the animals most commonly seen in veterinary medicine. Includes animal behavior, nutrition and healthcare. Prerequisites: completion or concurrent enrollment in 10-091-170, 10-806-105 and 10-091-105.

10-091-172 Animal Care and Management 2 3 credits
Focuses on handling, medical nursing and disease processes of the animals most commonly seen in veterinary medicine. Prerequisites: 10-091-170, 10-091-171 and 10-091-105.

Career Potential:

- **Veterinary Technician**
- **Laboratory Animal Technician**

Technicians are usually employed by: small/companion, large animal/equine, mixed animal or exotic animal practices or humane societies. Also, can help with care and use of animals in research environments.

With additional education and/or work experience, graduates may find employment as:

- **Hospital Managers**
- **Facility Managers**
- **Pet Food Company Representative**
- **Drug Company Representative**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

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Architectural Technician

Program Number: 10-614-1

Associate in Applied Science Degree

Applied Engineer Technologies Program Cluster

Center for Agriscience & Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Program

The architectural area is broad and challenging. It is the purpose of the architect and/or consulting engineer to supply owners with a set of plans and specifications of the structure desired. The architectural technician assists the architect or engineer in the development of plans and specifications, and while in the field, checks on building compliance with the contract documents.

Unique Requirements for Admission

High school course recommendations: We strongly recommend that students take the math sequence of Algebra 1 and Algebra 2 to best prepare them for this program. In addition, a high school physical science course is highly recommended. Students must earn a 2.0 (C) or better in these high school courses. Contact the Architectural Technician academic advisor at (608) 246-6232 for pre-registration advising.

The Architectural Technician Program participates in MAAP (Mandatory Assessment, Advising and Placement). This requires new students to complete the COMPASS test. Advisement and course placement in English and math is done based on test results. Testing will be required prior to admission.

Unique Requirements for Graduation

Graduation requirements: 68 credits and a GPA of 2.0 (C) or above; average of 2.0 (C) or above required to occupational specific courses.

Program Courses

10-614-111 Architectural Graphics 1 3 credits
Emphasizes architectural drafting and the theory of drafting. Proper architectural lettering, line work and use of drafting tools are discussed. Orthographic projection isometric, axonometric and perspective drawings, contours, shade and shadow are covered in the first semester. Massing studies using the software "Sketch up" is also incorporated.

10-614-112 Architectural Graphics 2/Studio 3 credits
Small-scale design projects will address the development of design skills. Topics covered include programming, site analysis, building materials, and building code issues will be studied for residential and commercial projects. Prerequisites: 10-614-111 and 10-614-113.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-614-111	Architectural Graphics 1	3	1-4
10-614-113	Intro to CAD-Architectural	3	1-4
10-614-121	Construction Materials	3	3-0
10-614-140	Architectural Print Interpretation	2	1-2
10-801-195	Written Communication	3	3-0
10-804-114	College Technical Math 1B	2	2-0
	Semester Total	**16**	
Second Semester			
10-614-112	Architectural Graphics 2/Studio	3	1-4
10-614-115	Intro to Revit	2	1-3
10-614-118	Design Communications	2	1-2
10-804-116	College Technical Math 2	4	4-0
10-806-154	General Physics 1	4	3-2
	Elective	2	E
	Semester Total	**17**	
SECOND YEAR			
First Semester			
10-614-155	Advanced Revit	2	1-2
10-614-123	Electrical and Mechanical Systems	4	4-0
10-614-154	Site Design	3	1-4
10-614-178	Mechanics/Strengths of Materials	4	4-0
10-614-193	Job Orientation	1	1-0
10-809-199	Psychology of Human Relations	3	3-0
	Elective	2	E
	Semester Total	**19**	
Second Semester			
10-614-132	Building Estimating	2	2-0
10-614-142	Architectural Detailing	2	1-2
10-614-145	Architectural Design Studio	4	2-4
10-801-197	Technical Reporting	3	3-0
10-809-166	Intro to Ethics: Theory & Application	3	3-0
	Elective	2	E
	Semester Total	**16**	

Note: Students are assessed for correct placement in English or mathematics courses based on their scores on the COMPASS test or on completion of the appropriate prerequisite/s. Additionally, there may be courses in other subject areas that may use COMPASS scores as prerequisites when reading, writing, math, or critical thinking competencies are required.

Recommended Electives

10-614-100	Introduction to Architecture	3 credits
10-614-101	Architectural Theory 1	3 credits
10-614-102	Architectural History	3 credits
10-614-114	CAD-Intermediate	2 credits
10-614-135	Building Codes	2 credits
10-614-150	Introduction to Specifications	2 credits
10-614-190	Special Problems	2 credits

Program Courses (Continued)

10-614-113 Intro to CAD-Architectural 3 credits
Major emphasis is placed on learning the basic commands necessary to complete 2-dimensional construction drawings for the architectural community. Approximately 50 percent of the course is spent on lecture/demonstrations concerning software commands and procedures, while 50 percent of the course is spent in on developing operating skills. A basic understanding of Windows and file management is necessary for success within the course. The current version of AutoCAD is used as the teaching tool. Corequisite: 10-614-111 or instructor consent.

10-614-115 Intro to Revit 2 credits
Students gain an understanding of the concepts of the industry's leading 3D architectural modeling software. Building Information Modeling (BIM) concepts and advantages will be discussed throughout the course. Students learn command concepts for creating 3D BIM models and how this model is used for automatic creation of floor plans, elevations, sections, and many other tedious drafting tasks. The course text takes you through a tutorial approach to create a model and learn the input commands of the software, yet allows the student to explore the software more fully. Instructor input is given throughout the course in order to incorporate various additional topical areas not covered within the text. At the end of the course, students will have developed a set of typical construction drawings based on their BIM mode. Prerequisites: 10-614-113 and 10-614-111.

10-614-118 Design Communications 2 credits
Studio course in techniques and conventions of graphic communication as an aid in the design process. It covers graphic principles, media, sketching and perspective drawing techniques. Emphasis is on developing drawing and rendering skills using pencil, color marker and pastels. Students generate sketches, presentation plans, and one- and two-point perspective drawings and use these drawings to generate a variety of architectural presentations. Prerequisite: 10-614-111.

10-614-121 Construction Materials 3 credits
Emphasizes materials used in building construction and their manufacture and application in various construction systems from wood frame to masonry, steel and precast concrete. Basic properties of materials are discussed as well as how, when and where to use them.

10-614-123 Electrical and Mechanical Systems 4 credits
Covers the basic principles of plumbing, electrical, lighting, daylighting, HVAC, fire safety, sprinklers, energy efficient design, vertical transportation and acoustics found in buildings today. Particular attention will be paid to the Wisconsin Commercial Building Code and its impact on these systems. Guest speakers and a small student designed project will augment the course. Prerequisites: 10-614-112 and 10-804-116.

10-614-132 Building Estimating 2 credits
Studies problems and responsibilities of the estimator, including plans, specifications and published construction cost data. Emphasis on estimating techniques and methods of preparing estimates and take-offs. Prerequisites: 10-614-115 and 10-804-116.

10-614-140 Architectural Print Interpretation 2 credits
This course provides the student with the basic fundamentals of reading and interpretation of construction documents for residential and light commercial construction. Emphasis will be placed on real world construction documents and their application. Students will learn how to read actual industry prints, interpret code requirements and study common construction materials and details used in architecture. Corequisite: 10-614-111 or instructor consent.

10-614-142 Architectural Detailing 2 credits
This course provides an in-depth study of materials and building assemblies as it pertains to accepted practices in architectural detailing and design. Emphasis will be placed on detailing techniques commonly found in commercial construction. Topics included are masonry, steel, and concrete construction. Field trips and guest lecturers from the architectural, engineering and construction industry will supplement the course. Prerequisites: Second year standing, 10-614-178 and concurrent enrollment in 10-614-145.

10-614-145 Architectural Design Studio 4 credits
Covers the basic skills used in the building design process. Introduces the student to building siting and massing, program analysis, building circulation, space flow diagrams, adjacency studies, and building context. The design process continues with the integration of the structural steel framing. The student will design the framing plans as well as complete the calculations for the sizing of the individual steel members. Prerequisites: 10-614-112 and 10-804-116.

10-614-154 Site Design 3 credits
Introduces the student to the basic design issues of the urban environment. Explore building massing and site analysis as they relate to the urban context. Learn about vehicular and pedestrian circulation, zoning analysis, contour manipulation and basic plant material selections. Course places a strong emphasis on in-class presentations utilizing the use of multimedia digital technology. Prerequisites: 10-804-114 and 10-614-112.

10-614-155 Advanced Revit 2 credits
Students develop proficiency in skills introduced in Intro to Revit, including modeling, family creation, design options, importing, rendering, and exporting with the current version of Revit Architecture. Particular emphasis will be placed on advanced modeling and family creation. This class also introduces new concepts related to creating and managing 3D BIM models including defining site topography and site-related features, massing, phasing, file linking, and worksharing. Competence will be demonstrated through performance on the CAD station, through saved projects, and through submitted printouts that will include both construction documents and rendered images. For one project, students will be working within a group and submitting a joint project, during which students will develop the essential worksharing skills required to complete large-scale building projects that require multiple drafters. Prerequisites: 10-614-111, 10-614-113 and 10-614-115.

10-614-178 Mechanics/Strength of Materials 4 credits
Study of forces that act on a structural member. These forces affect all types of structures including parts of machines. This course will emphasize the use of statics as it applies to building structures. We will look at types of force systems, vectors, resultant forces, moments, truss analysis and reactions. Strength of Materials provides the various analytical tools necessary for the sizing of specific structural members based on the loading conditions and strength of the material. The student will gain the knowledge necessary to calculate the sizes of members made of specific materials including wood, steel and masonry. Prerequisite: 10-804-116.

10-614-193 Job Orientation 1 credit
Occupational information prepares students to seek employment. Includes resume preparation, job interviews, portfolio design, and letters of introduction and recommendation. Former graduates are invited to discuss needs of students before employment. Representatives of labor, management, business and the professions are invited to discuss points of interest toward becoming an employee. Prerequisite: third-semester standing.

Career Potential:

- **Architectural Technician**
- **Building Sales Person**
- **Building Mechanical Technician**
- **Shop Drawing Draftsperson**
- **Structural Draftsperson**

With additional education and/or work experience, graduates may find employment as:

- **Architect**
- **Building Inspector**
- **Chief Draftsperson**
- **Commercial or Industrial Estimator**
- **Construction Engineer**
- **Structural Engineer**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/10

Civil Engineering Technology

Program Number: 10-607-1

Associate in Applied Science Degree

Applied Engineering Technologies Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Program

This program trains technicians to assist civil engineers in planning, scheduling, designing, estimating, surveying and inspecting the construction of highways, bridges, buildings and other structures. Specific courses provide a student with the option for a career in land surveying.

Unique Requirements for Admission

High school course recommendations: We strongly recommend that students take the math sequence of Algebra 1 and Algebra 2 to best prepare them for this program. In addition, a high school physical science course is highly recommended. Students must earn a 2.0 (C) or better in the high school courses. Contact the Civil Engineering academic advisor at (608) 246-6232 for pre-registration advising.

The Civil Engineering Program participates in MAAP (Mandatory Assessment, Advising and Placement). This requires new students to complete the COMPASS or ASSET test. Advisement and course placement in English and math is done based on test results. Testing will be required prior to admission.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-103-123	Windows 2007 *OR*	1	0.75-2.25
10-103-135	Windows XP (Qtr 1) *OR*	(1)	0.75-2.25
10-103-124	Windows Vista	(1)	0.75-2.25
10-103-137	Word-Beginning	1	2.25-.75
10-607-120	Methods in Civil Engineering	2	2-0
10-607-155	Survey 1	3	2-3
10-801-195	Written Communication	3	3-0
10-804-114	College Technical Math 1B	2	2-0
10-809-195	Economics	3	3-0
10-809-197	Contemporary American Society	3	3-0
	Semester Total	**18**	
Second Semester			
10-103-133	Excel-Beginning	1	2.75-.75
10-607-147	Civil Drawing 1	3	2-3
10-607-149	Aggregates and Concrete	2	1-3
10-607-156	Survey 2	3	2-3
10-607-193	Career Development	1	1-0
10-804-116	College Technical Math 2	4	4-0
10-806-154	General Physics	4	3-1
	Semester Total	**18**	

SECOND YEAR			
First Semester			
10-607-148	Civil Drawing 2	2	1-3
10-607-158	Survey 3	3	2-3
10-607-160	Soils	2	1-3
10-607-172	Stormwater Management	2	1.5-0.5
10-607-177	Legal Elements of Engineering	2	2-0
10-801-197	Technical Reporting	3	3-0
	Elective	3	E
	Semester Total	**17**	
Second Semester			
10-607-133	Estimating	3	2-2
10-607-161	Project	3	1-6
10-607-171	Construction Materials	2	2-2
10-607-179	Introduction to GIS	2	1-1
10-607-176	Water Supply and Sewerage	2	3.3-2.25
	Elective	3	E
	Semester Total	**15**	

Note: Students are assessed for correct placement in English or mathematics courses based on their scores on the COMPASS test or on completion of the appropriate prerequisite/s. Additionally, there may be courses in other subject areas that may use COMPASS scores as prerequisites when reading, writing, math, or critical thinking competencies are required.

Program Courses

10-607-120 Methods in Civil Engineering 2 credits
An introductory engineering course that familiarizes students with the civil engineering and construction processes from project concept to completion. Provides new students opportunity to develop and improve their problem-solving skills and prepare for subsequent technical courses.

10-607-133 Estimating 3 credits
Stresses estimating for general civil engineering work. Covers the preparation of detailed estimates as prepared by contractors for bidding purposes, the general estimate as prepared by engineers, and approximate estimates. Areas covered: highways, water and sewer lines, bridges, culverts, streets and general construction grading. Prerequisite: 10-607-177, fourth-semester standing or consent of instructor.

10-607-147 Civil Drawing 1 3 credits
Emphasis on development of graphical communication. Begins with basic manual drafting skills including line work, lettering, drafting tools use and free hand sketching of construction details. Transition in the last half of the semester to a CAD-based environment stressing geometric construction principles and simple engineering drawings. Corequisites: 10-607-156 and 10-103-135 or 10-103-124.

10-607-148 Civil Drawing 2 2 credits
Applications-oriented class with CAD emphasis. More complex drawing projects including mapping, roadway design elements and structural detail applications. Drawing organization and standards, data conversion and sharing, third-party add-ins. Prerequisites: 10-607-147 and 10-607-156.

10-607-149 Aggregates and Concrete 2 credits
Introduces the fundamental principles of aggregates, Portland cement concrete and bituminous concrete. Emphasizes standards-based sampling and testing in laboratory and field environments. Tests are performed according to standards set by the American Society for Testing and Materials (ASTM) and American Association of State Highway and Transportation Officials (AASHTO). Students communicate results in written reports. Prerequisites: 10-804-114 and 10-103-137.

10-607-155 Survey 1 3 credits
Basic measurement concepts, procedures, errors and computations underlying the technical aspects of surveying. Students use modern instrumentation to perform elevation, distance, and angular measurements. Coordinate geometry is introduced as a computational tool. Computations are done both manually and on computer using commercial software. Corequisites: 10-804-114, 10-607-120 and 10-103-135 or 10-103-124.

10-607-156 Survey 2 3 credits
Principles, computations and field methods, from design to stakeout, involved in three-dimensional curvilinear survey applications. AASHTO and WisDOT vertical and horizontal alignment standards; geometric and volumetric calculations. Field work reflecting different construction surveys are performed utilizing modern instrumentation. Prerequisite: 10-607-155. Corequisites: 10-607-147 and 10-804-116.

10-607-158 Survey 3 3 credits
Advanced concepts and procedures building on knowledge and skills attained in previous surveying classes. Concepts include geodetic applications, spatial reference systems, equipment adjustment, digital data collection and photogrammetry. Fieldwork includes total station calibration, control leveling, control network establishment and digital topographic data collection. Prerequisites: 10-607-156 and 10-607-147.

10-607-160 Soils 2 credits
Introduces the basic principles of soil mechanics and their application in engineering practice. Topics include soil composition and texture, subsurface investigation, classification, moisture-density relationships, permeability and seepage, consolidation, settlement, shear strength, lateral earth pressures, fundamentals of retaining structures, shallow and deep foundations, slope stability and erosion loss calculations. Prerequisites: 10-806-154 and 10-607-149. Corequisite: 10-801-197.

10-607-161 Project 3 credits
Project-driven course through which civil engineering technicians gain firsthand experience with design by developing plans, specifications and reports for a "real-world" project while working in a team environment. Students present written and oral reports to reinforce technical communication skills. Prerequisites: 10-607-148, 10-607-158 and 10-607-176. Corequisite: 10-607-133.

10-607-171 Construction Materials 2 credits
Introduction to the design, specification and detailing of steel and reinforced concrete in typical civil engineering projects. Emphasis on infrastructural applications. Prerequisite: 10-607-160.

10-607-172 Stormwater Management 2 credits
Introduces principles involved in the design of storm sewer systems, culverts, and detention/retention basins. Covers the basic concepts of hydraulics and hydrology. Prerequisite: Third semester standing.

10-607-176 Water Supply and Sewerage 2 credits
Provides the student with an understanding of the principles involved in design of municipal water supply, municipal sanitary sewerage, and private on-site waste treatment systems (POWTS). Prerequisites: 10-607-149 and 10-607-172

10-607-177 Legal Elements of Engineering 2 credits
Emphasizes contract relationships. The first half of the semester is spent studying the elements of a valid contract along with a study of the court system. The remainder of the semester concentrates on specifications, contracting procedure and the relationship between the three main parties involved in a construction contract: owner, engineer and contractor. Other topics include professional liability, professional ethics, product liability, discharge and remedies for non-completion. Prerequisite: third-semester standing or consent of instructor.

10-607-179 Introduction to GIS 2 credits
Basic terminology and components of geographic information systems. Capturing and organizing spatial data; integrating graphic and tabular information. Using spatial relationships to answer geographic queries. Civil engineering applications of GIS technology. Prerequisite: 10-607-147 or consent of instructor

10-607-193 Career Development 1 credit
Prepares students for work in a professional engineering environment by providing them with a knowledge and understanding of themselves and others. This course also guides students through the etiquette required for success in the job market and assists them in assembling the materials and information necessary for effective job applications and interviews. Prerequisites: 10-801-151 and 10-607-120.

Recommended Elective
10-607-190 Special Problems 1 credit
Note: The following two elective courses allow students to meet educational requirements for land surveyor registration as defined in Chapter A-E 6.04 of the Wisconsin Administrative Code. Students interested in a career in Land Surveying should consider taking these courses:
10-607-168 Land Surveying 1 3 credits
10-607-175 Land Surveying 2 3 credits

Career Potential:

- **Construction Inspector**
- **Survey Technician**
- **Civil CAD Technician**
- **Materials Testing Technician**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Electrical Engineering Technology

Program Number: 10-662-1

Associate in Applied Science Degree

Applied Engineering Technologies Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Truax Campus

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Program

The electronics industry offers many opportunities with high salaries and steady advancement for people with strong mathematics and analytical skills. This program offers an opportunity to develop abilities in a practical, hands-on curriculum. Employer demand for people who can analyze problems and implement solutions is always high. Computers, cellular phones, wireless services and other fields of electronics continue to expand.

This program offers excellent opportunities for articulation into four-year colleges and universities. A graduate of this program can articulate as a junior into the Milwaukee School of Engineering Bachelor of Science Electrical Engineering Technology program. Partial articulation can be arranged to the UW System with the assistance of a program advisor. COMPASS test is required for enrollment.

Unique Requirements for Admission:

Students must earn a grade of C or better in high school courses Algebra 1, Algebra 2, Chemistry and Physics. (Equivalent courses will be considered.)

The Electrical Engineering Technology Program participates in MAAP (Mandatory Assessment, Advising and Placement). This requires new students to complete the COMPASS test. Advisement and course placement in English and mathematics is done based on test results. Applicants can receive advanced standing for Applied Electronics Math 1 by scoring a 46 on the College Algebra section of the COMPASS test. Advanced placement for Applied Electronics Math 2 can be obtained by scoring a 46 in the Trigonometry section of the COMPASS test. Study guides, review material and sample questions for the COMPASS test are available online at matcmadison.edu (look for COMPASS in the "A-Z Index"). Applicants are advised to view this material prior to taking the test. Calculus AP may be applicable after consultation with a program advisor.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR

		Credits	Hrs/week Lec-Lab
First Semester			
10-605-112	AC-DC Electronics 1	3	2-3
10-605-113	Analog Circuit Techniques	3	2-3
10-605-118	Digital Circuit Techniques	3	2-3
10-801-195	Written Communication	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Semester Total	**15**	
Second Semester			
10-605-114	AC-DC Electronics 2	3	2-3
10-605-119	Digital Circuit Principles	3	2-3
10-605-173	Embedded Programming	3	2-3
20-605-270	AC/DC Circuit Techniques and Principles	3	2-3
10-801-197	Technical Reporting	3	3-0
10-804-196	Trigonometry with Applications **OR**	3	3-0
20-804-213	Trigonometry	(3)	(2-2)
	Semester Total	**18**	

SECOND YEAR

First Semester			
10-605-115	Analog Circuit Principles	3	2-3
10-605-131	Technical Calculus 1*	4	3-2
10-605-176	Microcontrollers	3	2-3
10-662-112	AC/DC Electronics 3	3	2-3
10-806-143	College Physics 1	3	2-2
10-809-195	Economics	3	3-0
	Semester Total	**18**	
Second Semester			
10-605-132	Technical Calculus 2*	4	3-2
10-605-143	Motors and Control Systems	3	2-3
10-605-150	Electronic Data Transmission	3	2-3
10-605-178	Networks, Interfacing & Programming	3	2-3
10-662-124	Advanced Circuit Analysis	3	2-3
20-809-203	Intro to Sociology	3	3-0
	Semester Total	**19**	

Alternate Math Selections*

20-804-231	Calculus and Analytic Geometry 1	5 credits
20-804-232	Calculus and Analytic Geometry 2	5 credits
20-804-233	Calculus and Analytic Geometry 3	5 credits

*In place of Technical Calculus 1 and 2, students who intend to transfer into the UW System should substitute Calculus & Analytic Geometry 1,2,& 3. When selecting this alternative, all three Calculus and Analytic Geometry courses are required for EET degree completion.

For all other alternatives, approval of an Electronics Department advisor is required. Students should also contact the receiving college or university about transferring credits as soon as they develop their course plans. Courses from the Liberal Studies Program-College Transfer Option (800-series) can be used in lieu of required courses.

Note: Students are assessed for correct placement in English or mathematics courses based on their scores on the COMPASS test or on completion of the appropriate prerequisite(s). Additionally, there may be courses in other subject areas that may use COMPASS scores as prerequisites when reading, writing, math, or critical thinking competencies are required.

Program Courses

10-605-112 AC-DC Electronics 1 3 credits
Course covers basic concepts of electric circuits including: Ohm's Law; Kirchhoff's Voltage and Current Laws; power calculations; and components such as resistors, switches, fuses, conductors, insulators, capacitors, inductors, relays, and other basic electronic components. Also covers use of digital multimeters (DMM); phase relationships; use of oscilloscopes on AC waveforms. Prerequisite: satisfactory mathematics placement score on COMPASS test.

10-605-113 Analog Circuit Techniques 3 credits
Introductory electronic course covering devices, circuits and applications. Uses analog electronics devices — diodes, (rectifier, zener, LED), field effect and bipolar transistors and operational amplifiers to learn basic theory and use of test equipment (DMM, oscilloscope, function generators) in testing and troubleshooting. Lab procedures emphasize use of documentation (schematics, layout diagrams, parts lists, data sheets) and troubleshooting procedures. Prerequisite: satisfactory mathematics placement score on COMPASS test, or concurrent enrollment in 10-605-112.

10-605-114 AC-DC Electronics 2 (transfer) 3 credits
Continuation of 10-605-112. Covers RL, RC, RLC circuits; transformers; filters; series and parallel resonance; bridge circuits; Thevenin and Norton theorems; wave shaping; internal resistance; motors; generators; three phase power; power factor and corrections; reactive and apparent power; wye and delta systems. A formal lab reporting required. Prerequisite: 10-605-112 and satisfactory mathematics placement score on COMPASS test.

10-605-115 Analog Circuit Principles 3 credits
Continuation of 10-605-113. Covers theory and application of field effect and bipolar transistor amplifiers, oscillators and operational amplifiers. Emphasis on circuits including gain, impedance and frequency response. Lab procedures emphasize increased proficiency with electronic test equipment. Prerequisites: 10-605-113 and 10-605-114.

10-605-118 Digital Circuit Techniques 3 credits
Course covers schematic digital component identification, PCB component identification, Engineering Notation, Basic Gates, IC Numbering Systems, Through hole and surface mount footprint identification, IPC-610-D* Hole Through and Surface Mount (SMT) soldering and rework training, Lead Free RoHS soldering and rework training, IPC-610-D* and RoHS rework criteria, dual source de-soldering training, surface mount fine pitch drag soldering training, and electronic assembly training.

**IPC certification is not automatic upon course completion. IPC certification is awarded separately from the academic credits.*

10-605-119 Digital Circuit Principles 3 credits
Course covers digital logic circuits including basic gates, flip-flops, decoders, counters, shift registers, multiplexing circuits, comparators and other similar devices. It also covers Boolean algebra and Karnaugh map minimization techniques and Field Programmable Gate Arrays (FPGA). Lab work includes individual project design, layout, construction, testing and documentation. Prerequisites: 10-605-112 and 10-605-118.

10-605-131 Technical Calculus 1 4 credits
This is an introductory course that examines analytic geometry, binomial series, differentiation of algebraic, exponential, logrithmic and trig. Functions and integration of algebraic functions. An emphasis is placed on the application of each of these topics to problems in science and engineering. Prerequisite: 20-804-213.

10-605-132 Technical Calculus 2 4 credits
This course is a continuation of Technical Calculus 1. Topics include integration techniques, partial derivatives, graphing conics, double integrals, polar coordinates, and first and second order differential equations. Emphasis is placed on applications to problems in science and engineering. Prerequisite: 10-605-131.

10-605-143 Motors and Control Systems 3 credits
Course covers AC and DC motors, stepping motors, feedback systems, servo controllers, sensors, relays, SCRs, Triacs, MOSFETs, programmable logic controllers, industrial controllers and applied systems and online microcomputer controls. Prerequisites: 10-605-115, 10-605-173 and 10-605-176.

10-605-150 Electronic Data Transmission 3 credits
Covers theory, systems and basic circuits for radio frequency and digital communications systems. Includes transmission, reception, encoding, decoding and information retrieval. Circuits include oscillators, filters, AM, FM, SSB and pulse modulation, PLLs, codecs, transmission lines, and interfacing. Prerequisites: 10-605-113, 10-605-114 and 10-605-119.

10-605-173 Embedded Programming 3 credits
Introduction to the fundamentals of electronic computer language, systems and structure. Embedded processor hardware will be covered from a system level perspective. Programming structures such as loops, branching, data storage, bit-level processing (masking), functions, arrays, pointers and structures will be covered. Languages include ANSI C, Embedded C Language and principles of assembly language. Prerequisite: 10-605-118.

10-605-176 Microcontrollers 3 credits
Course covers a study of microcontrollers and digital systems. Topics include Embedded C programming of Microcontrollers, Basic architectural concepts, parallel and serial I/O, Interrupts, Timer Subsystems, Analog to Digital conversion, Asynchronous Serial Communications (USART), CAN Bus communications, Synchronous Serial Communications (MSSP/SPI/IC2 Bus), Pulse Width Modulation (PWM), and basic control concepts. PrerequisiteS: 10-605-173 and 10-605-119.

10-605-178 Networks, Interfacing and Programming 3 credits
Programming in specialized environments like Lab View, Simulink and Visual Basic. Hardware and programming aspects of Ethernet interconnected computers, microcontrollers, remote sensors, control equipment and hardware. Prerequisites: 10-605-173 and 10-605-176.

10-662-112 AC-DC Electronics 3 3 credits
Topics include analysis of series and parallel AC RLC circuits, utilizing series and parallel equivalent circuits, superposition, Delta-Wye transformations, and Nodal Analysis. Real, reactive, and apparent power in AC circuits along with ideal loads in both single and three phase circuits are studied. Lab work includes analysis, computer simulation and actual measurements. Prerequisite: 10-605-114.

10-662-124 Advanced Circuit Analysis 3 credits
Topics include variable frequency analysis of RLC circuits, first order Bode plots, and correlation of time and frequency response. Semiconductor devices and circuits, including diodes, bipolar transistors and field effect transistors are studied. The time and frequency response of single stage BJT and FET amplifiers is examined. Lab work includes analysis, computer simulation, and actual measurements. Prerequisites: 10-662-112 and 10-605-115.

Career Potential:

- **Engineering Assistant**
- **Electronic Development Technician**
- **Electronic Technician**
- **Electronic Maintenance Technician**
- **Electronic Test Technician**
- **Field Service Technician**

With additional education and/or work experience, graduates may find employment as:

- **Electrical Engineer**
- **Electronic Engineer**
- **Computer Engineer**
- **Electronic Production Supervisor**
- **Electronic Maintenance Supervisor**
- **Field Service Engineer**
- **Network Engineer**

Alternate Math Selections

20-804-231 Calculus & Analytic Geometry 1 5 credits
20-804-232 Calculus & Analytic Geometry 2 5 credits
20-804-233 Calculus & Analytic Geometry 3 3 credits
(All three required in lieu of Technical Calculus 1 & 2 for MSOE transfer.)

Note: Students wishing to transfer to the UW system or other 4-year college should contact a program advisor and the receiving college or university about transferring credits.

Note: Courses from the Liberal Studies Program-College Transfer Option (800-series) can be used in lieu of required courses.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Electronic Assembler Certificate

Program Number: 90-605-1

Certificate

Applied Engineering Technologies Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Certificate

The electronics industry offers a wide range of job opportunities installing and assembling electronic equipment in manufacturing, research, development, medicine and communications. Communications, computers and industrial electronics continue to expand, and there is a high demand for electronics assemblers.

Unique Requirements for Admission

High school course recommendations: We strongly recommend that students take the math sequence of Algebra 1 and Algebra 2 to best prepare them for this program. In addition, a high school physical science course is highly recommended.

Program Courses

10-605-113 Analog Circuit Techniques 3 credits
Introductory electronic course covering devices, circuits and applications. Uses analog electronics devices — diodes, (rectifier, zener, LED), field effect and bipolar transistors and operational amplifiers to learn basic theory and use of test equipment (DMM, oscilloscope, function generators) in testing and troubleshooting. Lab procedures emphasize use of documentation (schematics, layout diagrams, parts lists, data sheets) and troubleshooting procedures.

10-605-118 Digital Circuit Techniques 3 credits
Course covers schematic digital component identification, PCB component identification, Engineering Notation, Basic Gates, IC Numbering Systems, Through hole and surface mount footprint identification, IPC-610-D Hole Through and Surface Mount (SMT) soldering and rework training, Lead Free RoHS soldering and rework training, IPC-610-D* and RoHS rework criteria, dual source de-soldering training, surface mount fine pitch drag soldering training, and electronic assembly training.

**IPC certification is not automatic upon course completion. IPC certification is awarded separately from the academic credits.*

Curriculum

OPTION 1: SINGLE SEMESTER

First Semester		Credits	Hrs/week Lec-Lab
10-605-113	Analog Circuit Techniques	3	2-3
10-605-118	Digital Circuit Techniques	3	2-3
	Certificate Total	**6**	

OPTION 2: TWO SEMESTERS

First Semester			
10-605-113	Analog Circuit Techniques	3	2-3
OR			
10-605-118	Digital Circuit Techniques	3	2-3
	Semester Total	**3**	
Second Semester			
10-605-118	Digital Circuit Techniques	3	2-3
OR			
10-605-113	Analog Circuit Techniques	3	2-3
	Semester Total	**3**	
	Certificate Total	**6**	

Career Potential:

- **Electronic Assembler**
- **Electronic Installer**
- **Cabling Technician**
- **Wiring Technician**

With additional education and/or work experience, graduates may find employment as:

- **Electronic Maintenance Technician**
- **Electronic Test Technician**
- **Electronics Technician**
- **Field Service Technician**
- **Computer Field Service Supervisor**
- **Electronics Production Supervisor**
- **Electronics Maintenance Supervisor**
- **Electrical Engineer**

The courses in the Electronic Assembler Certificate are a subset of the two year Associate of Applied Sciences (AAS) degree programs in Electrical Engineering Technology and Electronics Technology, counting towards graduation in both programs.

Students who attain this certificate are employable while continuing their education toward a full AAS degree.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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MADISON AREA | TECHNICAL COLLEGE

Real world smart.

Madison Area Technical College

Electronics

Effective: 2010-2011

Program Number: 10-605-1

Associate in Applied Science Degree

Applied Engineering Technologies Program Cluster

Center for Agriscience and Technologies

Program offered at the Madison Truax Campus

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Program

The electronics industry offers a wide range of job opportunities installing and maintaining electronic equipment in manufacturing, research, development, medicine and communications. Communications, computers and industrial electronics continue to expand, and there is a high demand for technicians and engineering assistants.

Unique Requirements for Admission

High school course recommendations: We strongly recommend that students take the math sequence of Algebra 1 and Algebra 2 to best prepare them for this program. In addition, a high school physical science course is highly recommended. Students must earn a 2.0 (C) or better in the high school courses.

The COMPASS test is required for all applicants. Advisement and course placement in English and mathematics is done based on COMPASS test results. Applicants can receive advanced standing for Applied Electronics Math 1 by scoring a 46 on the College Algebra section of the COMPASS test. Advanced placement for Applied Electronics Math 2 can be obtained by scoring a 46 in the Trigonometry section of the COMPASS test. Study guides, review material and sample questions for the COMPASS test are available online at matcmadison.edu (look for COMPASS in the "A-Z Index"). Applicants are advised to view this material prior to taking the test.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-605-112	AC-DC Electronics 1	3	2-3
10-605-113	Analog Circuit Techniques	3	2-3
10-605-118	Digital Circuit Techniques	3	2-3
10-605-171	Applied Electronics Mathematics 1	3	2-3
10-801-195	Written Communication	3	3-0
	Semester Total	**15**	
Second Semester			
10-605-114	AC-DC Electronics 2	3	2-3
10-605-115	Analog Circuit Principles	3	2-3
10-605-119	Digital Circuit Principles	3	2-3
10-605-172	Applied Electronics Mathematics 2	3	2-3
10-605-173	Embedded Programming	3	2-3
10-801-197	Technical Reporting	3	3-0
	Semester Total	**18**	
SECOND YEAR			
First Semester			
10-605-151	Instrumentation & Troubleshooting	3	2-3
10-605-176	Microcontrollers	3	2-3
10-806-143	College Physics 1	3	2-2
10-809-195	Economics	3	3-0
	Elective*	3	3-2
	Semester Total	**15**	
Second Semester			
10-605-143	Motors and Control Systems	3	2-3
10-605-152	Digital Systems Analysis	3	2-3
10-605-178	Networks, Interfacing and Programming	3	2-3
10-806-199	Psychology of Human Relations	3	2-3
10-809-166	Intro to Ethics: Theory & Applications	3	3-0
10-809-197	Contemporary American Society** **OR**	3	3-0
20-809-203	Introduction to Sociology**	(3)	(3-0)
	Semester Total	**18**	

***Recommended Electives**

10-605-116	Advanced Analog Solid State Circuits	3 credits
10-605-136	Biomedical Electronics	3 credits
10-605-150	Electronic Data Transmission	3 credits
10-605-160	Virtual Reality and Telerobotics	3 credits
20-605-252	Introduction to Computer Engineering	3 credits

**Substitution of Intro to Sociology, 10-809-203, for Contemporary American Society is recommended for any student who may wish to transfer into the Electrical Engineering Technology program.

Note: Students are assessed for correct placement in English or mathematics courses based on their scores on the COMPASS test or on completion of the appropriate prerequisite/s. In addition, there may be courses in other subject areas that may use COMPASS scores as prerequisites when reading, writing, math, or critical thinking competencies are required.

MADISON AREA TECHNICAL COLLEGE

Real world smart.

Program Courses

10-605-112 AC-DC Electronics 1 3 credits
Course covers basic concepts of electric circuits including: Ohm's Law; Kirchhoff's Voltage and Current Laws; power calculations; and components such as resistors, switches, fuses, conductors, insulators, capacitors, inductors, relays, and other basic electronic components. Also covers use of digital multimeters (DMM); phase relationships; use of oscilloscopes on AC waveforms. Prerequisite: satisfactory mathematics placement score on COMPASS test.

10-605-113 Analog Circuit Techniques 3 credits
Introductory electronic course covering devices, circuits and applications. Uses analog electronics devices — diodes, (rectifier, zener, LED), field effect and bipolar transistors and operational amplifiers to learn basic theory and use of test equipment (DMM, oscilloscope, function generators) in testing and troubleshooting. Lab procedures emphasize use of documentation (schematics, layout diagrams, parts lists, data sheets) and troubleshooting procedures. Prerequisite: Satisfactory mathematics placement score on COMPASS test, or concurrent enrollment in 10-605-112.

10-605-114 AC-DC Electronics 2 3 credits
Continuation of 10-605-112. Covers RL, RC, RLC circuits; transformers; filters; series and parallel resonance; bridge circuits; Thevenin and Norton theorems; wave shaping; internal resistance; motors; generators; three phase power; power factor and corrections; reactive and apparent power; wye and delta systems. A formal lab reporting required. Prerequisite: 10-605-112 and 10-605-171.

10-605-115 Analog Circuit Principles 3 credits
Continuation of 10-605-113. Covers theory and application of field effect and bipolar transistor amplifiers, oscillators and operational amplifiers. Emphasis on circuits including gain, impedance and frequency response. Lab procedures emphasize increased proficiency with electronic test equipment. Prerequisites: 10-605-113 and 10-605-114.

10-605-118 Digital Circuit Techniques 3 credits
Course covers schematic digital component identification, PCB component identification, Engineering Notation, Basic Gates, IC Numbering Systems, Through hole and surface mount footprint identification, IPC-610-D* Hole Through and Surface Mount (SMT) soldering and rework training, Lead Free RoHS soldering and rework training, IPC-610-D* and RoHS rework criteria, dual source de-soldering training, surface mount fine pitch drag soldering training, and electronic assembly training.

**IPC certification is not automatic upon course completion. IPC certification is awarded separately from the academic credits.*

10-605-119 Digital Circuit Principles 3 credits
Course covers digital logic circuits including basic gates, flip-flops, decoders, counters, shift registers, multiplexing circuits, comparators and other similar devices. It also covers Boolean algebra and Karnaugh map minimization techniques as well as Field Programmable Gate Arrays (FPGA). Lab work includes individual project design, layout, construction, testing and documentation. Prerequisite: 10-605-112 and 10-605-118.

10-605-143 Motors and Control Systems 3 credits
Course covers AC and DC motors, stepping motors, feedback systems, servo controllers, sensors, relays, SCRs, Triacs, MOSFETs, programmable logic controllers, industrial controllers, and applied systems and online microcomputer controls. Prerequisite: 10-605-115, 10-605-173 and 10-605-176.

10-605-151 Instrumentation and Troubleshooting 3 credits
Course covers the uses and limitations of common electronic test equipment, uses, calibration and limitations of common sensors for monitoring, troubleshooting methodology and techniques. Prerequisite: 10-605-112, 10-605-113 10-605-114, 10-605-115, 190-605-118 and 10-605-119.

10-605-152 Digital Systems Analysis 3 credits
This senior capstone course is project based. The class is structured as a Research and Development Corporation. Students will exercise their digital electronics, embedded C programming, electronics assembly and microcontroller systems skills. A final project presentation will allow students to share their experiences with the rest of the department. Previous projects include: RPM meters, Golf Club head speed meters, GPS-microcontroller interface. Prerequisite: 10-605-118, 10-605-119, 10-605-173 and 10-605-176.

10-605-171 Applied Electronics Mathematics 1 3 credits
First of a two-part applied electronics mathematics sequence. Focuses on math concepts most needed by technicians. Closely tied to the other first-semester electronics courses. Laboratory sessions focus on math associated with circuits, instruments and computers to help students appreciate the connections between math and electronic circuits. Prerequisite: satisfactory score on the math portion of the COMPASS test.

10-605-172 Applied Electronics Mathematics 2 3 credits
This course continues to develop the mathematics skills needed by technicians to be successful in their field. Closely tied to the other second-semester electronics courses. Laboratory sessions continue to integrate math with electronic applications. Prerequisite: 10-605-171 or equivalent competency level.

10-605-173 Embedded Programming 3 credits
Introduction to the fundamentals of electronic computer language, systems and structure. Embedded processor hardware will be covered from a system level perspective. Programming structures such as loops, branching, data storage, bit-level processing (masking), functions, arrays, pointers and structures will be covered. Languages include ANSI C, Embedded C Language and principles of assembly language. Prerequisite: 10-605-118.

10-605-176 Microcontrollers 3 credits
Course covers a study of microcontrollers and digital systems. Topics include Embedded C programming of Microcontrollers, Basic architectural concepts, parallel and serial I/O, Interrupts, Timer Subsystems, Analog to Digital conversion, Asynchronous Serial Communications (USART), CAN Bus communications, Synchronous Serial Communications (MSSP/SPI/IC2 Bus), Pulse Width Modulation (PWM), and basic control concepts. Prerequisite: 10-605-173 and 10-605-119.

10-605-178 Networks, Interfacing and Programming 3 credits
Programming in specialized environments like Lab View, Simulink and Visual Basic. Hardware and programming aspects of Ethernet interconnected computers, microcontrollers, remote sensors, control equipment and hardware. Prerequisite: 10-605-173 and 10-605-176.

Career Potential:

- **Computer Technician**
- **Network Technician**
- **Electronic Development Technician**
- **Electronic Maintenance Technician**
- **Electronic Test Technician**
- **Electronics Technician**
- **Field Service Technician**

With additional education and/or work experience, graduates may find employment as:

- **Computer Field Service Supervisor**
- **Electronics Production Supervisor**
- **Electronics Maintenance Supervisor**
- **Electrical Engineer**
- **Network Manager**

Alternate Math Selections

10-804-196	Trigonometry with Applications	3 credits
20-804-213	Trigonometry	3 credits
10-605-131	Technical Calculus 1	4 credits
10-605-132	Technical Calculus 2	4 credits

Note: Students wishing to transfer to the UW system or other 4-year college should contact a program advisor and the receiving college or university about transferring credits.

Note: Courses from the Liberal Studies Program-College Transfer Option (800-series) can be used in lieu of required courses.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Mechanical Design Technology

Program Number: 10-606-1

Associate in Applied Science Degree

Applied Engineering Technologies Program Cluster

Center for Agriscience and Technologies

Program offered at Madison and Watertown Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Program

Mechanical design technicians assist engineers in the design of products and prepare engineering drawings for any manufactured product that you use in everyday life. The parts of a car, the chairs you sit on or the computer keyboard you use, are all examples of mechanical parts that have to be designed and drawn prior to being manufactured.

Mechanical design technicians are challenged through active involvement in the engineering design process creating more dependable, cost effective and unique product designs that will satisfy their customers. To assist in this process, mechanical design technicians use science, mathematics, engineering problem solving, computer-aided design (CAD) technology and parametric solid modeling.

Unique Requirements for Admission

It is strongly recommend that students take the high school math sequence of Algebra 1 and Algebra 2. A high school physical science course is highly recommended. Student must earn a 2.0 (C) or better in these high school courses.

The Mechanical Design Technology program participates in MAAP (Mandatory Assessment, Advising and Placement). This requires new students to complete the COMPASS test. Advisement and course placement in English and math is done based on test results. Testing will be required prior to admission.

Program Courses

10-606-100 Engineering Technology Communications 3 credits
Develops skills in creating engineering sketches through the application of drafting standards and procedures. Principles covered include view selection, orthographic projection, section and auxiliary views, and their utilization in working drawings. The need for engineering sketching is reinforced through a hands-on project requiring measurement, inspection and sketching of orthographic views. In addition, materials, fabrication and assembly methods related to the project will also be explored. Corequisites: 10-606-120 and 10-606-130.

10-606-101 Engineering Technology Fundamentals 2 credits
Introduces the student to the knowledge and skills required to function in today's engineering office environment. Engineering office format, procedures, standards, ethics and application level of engineering office related software is introduced. Students explore the engineering design process and participate in various problem solving and conflict resolution techniques. Career paths available to the Mechanical Design graduate will also be explored. Students utilize Net Meeting, video conferencing and Internet shared data.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-606-100	Engineering Technology Communications	3	1-4
10-606-101	Engineering Technology Fundamentals	2	1-2
10-606-120	2D CAD	2	1-2
10-606-130	SolidWorks 1	2	1-2
10-606-160	Fundamentals of Mfg/Eng Materials	2	1-2
10-801-195	Written Communication	3	3-0
10-804-114	College Technical Math 1B	2	2-0
	Semester Total	**16**	
Second Semester			
10-606-131	SolidWorks 2	2	1-2
10-606-140	Dimensioning/GDT	3	2-2
10-606-155	Statics & Mechanics	3	2-2
10-606-161	Manufacturing Processes	2	1-2
10-606-170	Strength of Materials	3	2-2
10-804-116	College Technical Math 2	4	2-0
10-809-199	Psychology of Human Relations	3	3-0
	Semester Total	**20**	

SECOND YEAR			
First Semester			
10-606-104	Engineering Technology Practices	3	1-4
10-606-116	Machine Design	3	2-2
10-606-125	Plastics	3	2-2
10-606-163	Manufacturing Analysis	2	1-2
10-606-164	Quality Systems	2	1-2
10-606-193	Career Development	1	1-0
10-809-166	Introduction to Ethics	3	3-0
	Semester Total	**17**	
Second Semester			
10-606-112	Tool Design Technology	3	1-4
10-606-150	CAE Applications	2	1-2
10-606-152	PLC, Hydraulics, Pneumatics	2	1-2
10-606-186	Engineering Technology Applications	3	1-4
10-801-197	Technical Reporting	3	3-0
10-806-154	General Physics	4	3-2
	Semester Total	**17**	

Note: Students are assessed for correct placement in English or mathematics courses based on their scores on the COMPASS test or on completion of the appropriate prerequisite(s). Additionally, there may be courses in other subject areas that may use COMPASS scores as prerequisites when reading, writing, math, or critical thinking competencies are required.

Program Courses (continued)

10-606-104 Engineering Technology Practices 3 credits
Focuses on the creation of complete sets of engineering detail and assembly drawings including the accompanying engineering documentation, bill of materials and the application of geometric dimensioning and tolerancing standards. Emphasis is placed on product design analysis, the engineering change process, product data management and an introduction to stress analysis and rapid prototyping. Other areas of study: threaded fasteners, non-threaded fasteners, springs and gears. Prerequisite: 10-606-140.

10-606-112 Tool Design Technology 3 credits
The fundamentals of tool design are presented to acquaint the student with the language and methods used in designing jigs and fixtures. Through the research and selection of standard tooling components, working tool design drawings are completed. Also explored are common plastic part design and tooling considerations through actual design problems. Prerequisite: 10-606-104.

10-606-116 Machine Design 3 credits
The principles of statics and strength of materials are reviewed and applied to the design of common machine elements. Typical elements studied include: fasteners, shafts, clutches, belts, chains, gears, bearings and springs combined to form machines.
Prerequisite: 10-606-170.

10-606-120 2D CAD 2 credits
Introduces the basic capabilities of the current version of 2D CAD software as it applies to mechanical design. Emphasis is placed on basic commands and input required for their application in creating two-dimensional mechanical working drawings.
Corequisites: 10-606-100 and 10-606-130.

10-606-125 Plastics 3 credits
This course is an introduction to the main plastics processing industries, techniques, and commonly used polymers. Plastic processing principles will be studied and applied through learning activities designed for hands-on classroom manufacturing processing training centers. In addition, students will be provided with relevant information that will enable them to investigate the career possibilities in the plastic industry.

10-606-130 SolidWorks 1 2 credits
Introduces the students to the concepts commands of parametric solid modeling. Students create sketches and add relationships to the sketch segments, extrude the sketches to create models, add features such as fillets, cut extrude, chamfers, holes, draft, shell, lofts and sweeps. Emphasis is placed on the design intent of parametric solid models. In addition, students extract 2D documentation from the 3D models and add details to the drawings. Corequisites: 10-606-100 and 10-606-120.

10-606-131 SolidWorks 2 2 credits
A continuation in the study of parametric design started in 10-606-130, Solid Modeling 1. Topics covered in the course include: assemblies and BOM, the use of equations, part configurations and design tables, derived and molded parts, thin features and sheet metal, and the application of photoworks, edrawings, toolbox and 3D meeting. Prerequisite: 10-606-130.

10-606-140 Dimensioning/GDT 3 credits
Mechanical drafting dimensioning fundamentals are developed including conventional tolerancing and basic hole and shaft tolerancing methods. The course continues with developing the technical knowledge and skills, which are required for meaningful application and interpretation of geometric dimensioning and tolerancing on mechanical drawings in accordance with the current ASME Y14.5M standard. Prerequisites: 10-606-100, 10-606-120 and 10-606-130.

10-606-150 CAE Applications 2 credits
Introduction to how engineering and manufacturing utilize a parametric modeled file. Students will follow parts through the product development cycle utilizing parametric design, computer aided manufacturing, stress analysis, computer simulation and rapid prototyping. Prerequisite/Corequisite: 10-606-186.

10-606-152 PLC, Hydraulics, Pneumatics 2 credits
Overview of the basics of programmable logic controllers, hydraulics, and pneumatics. Basic system components, symbols and schematics are explored. Prerequisite: third or fourth semester standing.

10-606-155 Statics & Mechanics 3 credits
Introduces students to the basic fundamentals of statics. Learners study and analyze forces and loading conditions applied to structures and mechanical devices. Areas of study include resultant and equilibrant of forces, moments, nonconcurrent-coplanar forces (trusses), concurrent-noncoplanar forces and static friction. Prerequisite: 10-804-114. Corequisite: 10-804-116.

10-606-160 Fundamentals Of Manufacturing/ Engineering Materials 2 credits
An introduction to the engineering materials and their properties used in industry. Material testing methods and their relevance to design applications are studied through various lab activities. In addition, this course begins the examination of various contemporary manufacturing processes used in industry today.

10-606-161 Manufacturing Processes 2 credits
Introduces students to computer aided design and manufacturing concepts through an integrated material removal project. Upon completing the project, students will use various measurement and inspection equipment to verify part conformance to engineering specifications. Prerequisites: 10-606-130 and 10-606-160.

10-606-163 Manufacturing Analysis 2 credits
An introduction to manufacturing engineering technology processes, applications, and knowledge, as it relates to the Mechanical Design field. Areas of study include "Manufacturing Topics of Today", "Project Management", and "The Product Development Process" in preparation for the Engineering Technology Applications course. Prerequisite: third semester standing.

10-606-164 Quality Systems 2 credits
This course is an introduction to the foundational building blocks necessary for effective understanding and application of quality principles used today. The fundamentals of quality, measurement for quality, and statistics for quality will be explored as they relate to productivity, specifications, and inspections of processes. In addition, process capability and design of experiments is also explored. Prerequisite: 10-606-140.

10-606-170 Strength Of Materials 3 credits
An analysis of the principles of strength of materials as they apply to various fasteners, welded joints, beams and shafts through practical design and analysis problems. Topics covered include simple stresses, mechanical properties of materials, center of gravity, moment of inertia, shear force and bending diagrams and beam design. Related engineering analysis software is utilized throughout the course. Prerequisite: 10-606-155.

10-606-186 Engineering Technology Applications 3 credits
A comprehensive application of the Mechanical Design Technology program, in which student teams will implement the design project plan previously developed in the Manufacturing Analysis course. Implementation of the design project plan will be carried out through a 3-step concurrent engineering design process: Ideation, Refinement, and Implementation. A final presentation of the design project will be presented in a formal design project notebook, as well as through a formal team design project presentation. Prerequisite: 10-606-163.

10-606-193 Career Development 1 credit
Acquaints students with the process and the development of a plan for securing employment in the mechanical design field. Includes letters of introduction, resume design, personal data sheets, portfolio design and job interview techniques. Presentations by industry professionals in the areas of human resources, management, design and job placement will overview the industry perspective and requirements for employment in the career of mechanical design. Prerequisite: third-semester standing.

Career Potential:

- **Detailer**
- **Mechanical Design Technician**
- **Mechanical Drafter**
- **CAD Drafter**

With additional education and/or experience, graduates may find employment as:

- **Mechanical or Product Designer**
- **Lead Designer**
- **Project Engineer**
- **Technical Sales/Service Representative**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Effective: 2010-2011

Renewable Energy Certificate

Program Number: 90-480-2

Certificate

Applied Engineering Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Certificate

The Madison College Renewable Energy Certificate is designed to provide students with the theoretical knowledge necessary for a career in energy management and renewable energy technology. Students acquire hands-on skills in troubleshooting, maintenance, installation, operation and repair and replacement of related equipment.

The certificate requires a minimum of 12 credits of coursework. Students may choose from online and face-to-face courses in several areas of emphasis including: transportation, photovoltaics, solar thermal, wind, or biomass.

Certificate credits may be combined with additional coursework to enhance traditional diploma, degree, transfer and associate programs at Madison College. The credits also may be combined with additional training, job experience and/or professional examinations to qualify for certification by national renewable energy institutions.

Incumbent trade workers and technical professionals are also encouraged to investigate how a Renewable Energy Certificate may relate to their current work or business practices. Online, weekend, and summer class schedules accommodate high school and post-secondary educators in the science and technical education fields.

Certificate courses are developed and taught by renewable energy experts who are members of the Consortium for Education in Renewable Energy Technology (CERET). Through this collaborative relationship, Madison College is able to offer students the opportunity to enroll in cutting-edge courses taught from locations across the United States. Face-to-face courses are delivered in a full-day intensive format often taught during weekends, winter break, spring break and/or summer sessions.

Curriculum

		Credits	Hrs/week Lec-Lab
*Choose at least 3 credits from among these **online** courses:*			
10-480-100	Solar & Other Renewable Energy Systems	4	4-0
10-481-110	Energy Management	4	4-0
20-623-290	Renewable Energy for International Development	3	3-0
	Total	**at least 3 credits***	
*Plus at least 3 credits from among these **online** courses:*			
10-481-140	Sustainable Home Design	2	2-0
10-482-130	Solar Electric Fundamentals and Grid-Direct Design	2	2-0
10-482-134	Grid-Direct Solar Electric Systems and Code Criteria	2	2-0
10-484-160	Introduction to Biomass Energy	3	3-0
	Total	**at least 3 credits***	
*Plus at least 1 credit from among these **face-to-face** courses:*			
10-482-100	PV Design and installation	2	2-0
10-482-131	Basic Photovoltaics and Site Assessment	1	1-0
10-482-132	Intermediate Photovoltaics	1	1-0
10-482-133	Advanced Photovoltaics Installation	1	1-0
10-482-135	Advanced Photovoltaic Electives	1-3	1-3-0
10-482-151	Wind Site Assessor Training	1	1-0
10-482-152	Wind Systems Repair/Maintenance	2	2-0
10-482-153	Wind Systems Installation	2	2-0
10-482-154	Advanced Wind Electives	1-3	1-3-0
10-483-110	Solar Water Installation	1	1-0
10-483-141	Solar Domestic Hot Water and Space Heating Systems	1	1-0
10-483-142	Solar Hot Water Site Assessment	1	1-0
10-484-121	Introduction to Ethanol Fuel	1	1-0
10-484-123	Intro to Hybrid Electric Vehicles	1	1-0
10-484-130	Introduction to Biodiesel Fuel	1	1-0
10-484-161	Anaerobic Digester Technology	1	1-0
10-484-162	Wood Combustion Heating Systems	1	1-0
	Total	**up to 5 credits, a maximum of 4 MREA credits***	

***Students must complete a total of 12 credits to earn the certificate**

Program Courses

10-480-100 Solar & Other Renewable Energy Systems (online) 4 credits
The student will learn and demonstrate the principles of energy efficient and solar design analysis and construction. Students will analyze the solar energy systems and will calculate solar savings fractions, backup heat needs, and economic analysis. The student will investigate the technologies and applications of other non-polluting and renewable forms of energy including wind power, photovoltaic and alternative transportation vehicles.

10-481-110 Energy Management (online) 4 credits
The student will perform critical examinations of energy consuming facilities both domestic and commercial for the purpose of identifying energy conservation opportunities. In addition, the student will identify various energy conservation techniques as well as equipment which can be installed to further conserve energy.

10-481-140 Sustainable Home Design (online) 2 credits
This course covers the principles behind designing and building residential structures that achieve optimal year-round comfort, reduce energy consumption, improve indoor air quality, and limit environmental impact. The emphasis is on integrated design using a whole-building approach, applying building science and integrating green design strategies into the built environment. Also covered will be the synergistic relationship between climate-sensitive design and natural building materials. Students will be able to identify a range of solutions to various design needs that will result in a sustainable and comfortable home. Case studies of successful solar homes are included.

10-482-100 PV Design and Installation 2 credits
This workshop is designed to offer students a higher level of lecture and hands-on learning that will prepare them for field installations and other advanced workshops. Students will learn how to correctly size and select PV system components. Participants will identify and interpret NEC codes that pertain to the installations. Our outdoor training roof enables our instructors to teach safety, system design and layout, component selection, wiring techniques, installation techniques, and troubleshooting.

10-482-130 Solar Electric Fundamentals and Grid-Direct Design (online) 2 credits
This course will provide an overview of the three basic PV system applications, primarily focusing on grid-direct systems. The goal of the course is to create a fundamental understanding of the core concepts necessary to work with all PV systems, including: system components, site analysis, PV module criteria, mounting solutions, safety, and commissioning. The course will also cover the basics of sizing a residential grid-direct system, wire sizing, over current protection, and grounding.

10-482-131 Basic Photovoltaics and Site Assessment 1 credit
Students will learn the basics of photovoltaic system components and the steps necessary to performing a site audit prior to an installation of a PV system. Focus is put on the defining the solar window, system siting and sizing, load analysis and energy efficiency.

Program Courses (continued)

10-482-132 Intermediate Photovoltaics 1 credit
This course is designed for students to get a basic understanding of PV system design and installation principles. Hands-on activities will introduce basic installation techniques. This class is recommended to students planning to take advanced PV workshops. Topics include batteries, wiring configurations, system diagramming, installation techniques and system maintenance.

10-482-133 Advanced Photovoltaics Installation 1 credit
This course will involve students in the hands-on installation of a utility intertie PV system with battery back up on a dual axis mast tracker. Prior knowledge of PV systems and components is required. This class is designed for individuals and professionals who are planning on installing PV systems. Topics include safety, system design and layout, National Electric Code, component selection, wiring and installation techniques.

10-482-134 Grid-Direct Solar Electric Systems and Code Criteria 2 credits
This workshop will build upon the core concepts from 10-482-130 and continue to emphasize grid-direct systems. The course will focus significantly on the National Electrical Code (NEC), including grid interface calculations, grounding considerations, and advanced component specification. Students will learn to evaluate system performance under various operating conditions. Commercial system design elements, such as inter-row shading, inverter selection, and data monitoring solutions will also be covered.

10-482-135 Advanced Photovoltaic Electives 1-3 credits
These Advanced Photovoltaic Courses from the MREA, SEI, and Madison College can be taken with permission from project administrators.

10-482-151 Wind Site Assessment 1 credit
Students will learn how to evaluate a site's wind energy potential, determine wind speeds at proposed heights, make a load profile for a client's energy needs, determine appropriate tower heights and estimate kWh output for a system based upon wind resources. The course will lead students through the background information required to perform wind site assessments for the Focus on Energy program, other state incentive programs, and for the home or business owner to assess their site. This class will prepare students for the Wind Site Assessor Certification Test administered by the Midwest Renewable Energy Association.

10-482-152 Wind Systems Repair and Maintenance 2 credits
Students will visit a number of area wind turbines and learn how to do system repairs and annual maintenance. Machines from 1kW to 20kW will be covered. Work will include freestanding, guyed and tilt-up towers. This is a working class, with optional tower climbing.

10-482-153 Wind Systems Installation 2 credits
Students will install a working wind turbine on a pre-selected site. Mornings will be spent in class lecture on topics of wind energy basics and afternoons will be dedicated to hands-on construction of the wind system. This is a working class, with optional tower climbing.

10-482-154 Advanced Wind Electives 1-3 credits
These Advanced Photovoltaic Courses from the MREA and Madison College can be taken with permission from project administrators.

10-483-110 Solar Water Installation 1 credit
This course is a hands-on workshop that includes both theory and installation practice. Two systems will be installed on a training roof-drainback and pressurized closed-loop systems. This class will qualify students to be on the Focus on Energy Full Service Installer List.

10-483-141 Solar Domestic Hot Water and Space Heating Systems 1 credit
This class provides an overview of solar systems for domestic hot water and space heating applications. These systems can provide in excess of 50 percent of a home's hot water and/or space heating needs, reducing the consumption of costly fossil fuel energy sources. This class includes an introduction to integrated collector/storage, open loop, closed loop, drainback, draindown, and antifreeze hot water systems. Solar hot air heating, in-floor radiant heating, and high mass thermal storage are also covered. Additional topics include choosing a site, system sizing, system components, system design types and basic installation techniques.

10-483-142 Solar Hot Water Site Assessment 1 credit
This class prepares students to perform solar domestic hot water heating site assessments for residential applications. Students will learn how to define a site's solar window, interpret solar radiation and temperature data, size a system, identify system components, determine the best location for collectors, and determine structural integrity for an installation. Attention will be given to preparation of assessment reporting documents and communication with customers, installers, other professionals and state officials. This class will prepare students for the Solar Thermal Site Assessor Certification Test administered by the Midwest Renewable Energy Association.

10-484-121 Introduction to Ethanol Fuel 1 credit
This course will provide the student with a general overview of ethanol fuel. Topics covered will include fermentation and distillation chemistry, ASTM fuel testing, engine performance, and exhaust emissions. An introduction to E85 fuel systems will also be included.

10-484-123 Intro to Hybrid Electric Vehicles 1 credit
This course will provide a general overview of hybrid electric vehicles. Topics covered will include hybrid propulsion systems, battery chemistry, high voltage safety, regenerative braking, and electric motors and generators.

10-484-130 Introduction to Biodiesel Fuel 1 credit
This course will provide a general overview of biodiesel fuel. Production and quality control of biodiesel fuel will be explored, and students will have the opportunity to synthesize a small scale batch of biodiesel. Topics covered will include transesterfication chemistry, separation techniques, ASTM fuel testing, engine performance, and exhaust emissions.

10-484-160 Intro to Biomass Energy (online) 3 credits
This course provides an overview of energy production from biomass resources. The course explores the fundamentals of plant growth, energy yield, economics, production, and processing methods for both herbaceous and woody crops. Technologies covered include combustion, gasification, pyrolysis, fermentation, transesterfication, and anaerobic digestion. Value-added bio-refining products are also examined, along with the environmental impacts of biomass energy.

10-484-161 Anaerobic Digester Technology 1 credit
Provides participants with an understanding of basic heat transfer properties as well as the biological and chemical reactions that take place in anaerobic digestion systems. Participants will also develop an in-depth knowledge of the design of anaerobic digestion systems, troubleshooting and repair methods, and workplace safety.

10-484-162 Wood Combustion Heating Systems 1 credit
Students will learn how to burn word cleanly and efficiently. The use of wood in residential heating systems is covered with attention given to firebox insulation, primary and secondary combustion air, fuel bed construction, burn zones, baffles and heat/transfer/distribution.

20-623-290 Renewable Energy for International Development (hybrid) 3 credits
This course provides an examination of energy and economics in developing countries with special consideration given to renewable energy sources. The course will combine 10 days of travel and study abroad in a developing country along with 8 weeks of online instruction. Students will learn to specify, design, and install renewable energy systems for deployment in developing countries. Field work will include design and construction/installation of one or more residential scale renewable energy systems (e.g. solar electric systems, solar hot water systems, solar ovens, micro-hydropower, small scale wind generators, and household methane biodigesters).

Career Potential:

- **Wind Turbine Technician/Installer**
- **Solar Hot Water Technician/Installer**
- **Photovoltaic Technician/Installer**
- **Anaerobic Digester Technician/Installer**
- **Biofuel Refinery Operator/Technician**
- **Building Operator/Technician**
- **Power And Utility Technician**
- **Legislative Research Technician**
- **Energy Manager/Analyst**
- **Energy Auditor**
- **Energy Broker/Marketer**
- **Resource Conservation/Efficiency Manager**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Biotechnology Intensive Post-baccalaureate Certificate

Program Number: 90-007-2

Certificate

Biotechnology and Electron Microscopy Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6204, (608) 243-4307 or (800) 322-6282 Ext. 6204 or 4307

About the Certificate

This certificate program was designed in collaboration with industry partners for individuals who already have a Bachelor's Degree in a biological science and want to improve their employability in the biotechnology industry. *The intensive program is offered full-time. 8:30 – 2:30 daily, in the spring semester. It provides practical, advanced laboratory skills and an introduction to the business of biotechnology.* Admission is competitive and participants must agree to participate fully in all activities and field trips. The curriculum is project-based and team oriented to simulate a biotechnology company environment. Each student will also complete an independent project that is presented in a poster fair to colleagues and potential employers.

Unique Requirements for Admission

- Bachelor's degree in a biological science
- Consent of program director
- Two semesters of college chemistry
- Microbiology course with laboratory
- Two semesters of general biology
- Cell biology or genetics course within the last 7 years

Participants will learn:

- Basic lab skills for a regulated workplace
- The requirements of a cGMP/cGLP environment
- Recombinant DNA methodologies
- Mammalian cell culture, including human embryonic stem cell lines
- Bioseparations
- Bioinformatics (survey)
- Microarrays (survey)

For more information:

Lisa Seidman, lseidman@matcmadison.edu, (608) 246-6204 or Jeanette Mowery, jmowery@matcmadison.edu, (608) 243-4307

Curriculum

Courses		Credits	Hrs/week Lec-Lab
10-007-103	Biotechnology Laboratory Skills for a Regulated Workplace	3	1-6
10-007-122	Protein Bioseparation Methods	3	1-6
10-007-123	Cell Culturing	3	1-6
10-007-124	Molecular Biology 1	3	1-6
10-007-136	Laboratory Math for Biotechnology	1	1-0
10-102-134	Business Organization and Management	2	2-0
	Total	**15**	

Note: the classes need to be taken concurrently.

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Certificate Courses

10-007-103 Biotechnology Laboratory Skills for a Regulated Workplace 3 credits
Covers basic concepts and techniques necessary to work effectively in a biotechnology lab. The importance of quality regulations and standards and the role of the technician in producing quality results is emphasized. Laboratory math is introduced and applied. Students learn basic techniques including: measuring, weighing, mixing solutions, following and writing procedures, keeping records, making observations, and using instrument manuals and catalogues. Principles of metrology (measurement) are introduced and students practice using, calibrating, and verifying the performance of instruments. Team-based projects simulate the application of these methods in a biotechnology research and development environment.

10-007-122 Protein Bioseparations Methods 3 credits
Introduces the strategies to purify proteins as part of a biotechnology process. Methods include: specific activity assays for enzymes, extraction of proteins from bacterial cells, salting-out, dialysis, ion exchange chromatography, and polyacrylamide gel electrophoresis. The application of these methods at both the research and production scales is introduced.

10-007-123 Cell Culturing 3 credits
Covers the basic techniques of plant and animal cell culture. Plant unit includes media preparation isolation of explants and establishment of callus from suspension cultures, growth factor bioassays, regeneration of whole plants from tissue and plant genetic engineering techniques. Mammalian cell unit includes media preparation, maintenance of cultured cells, including human embryonic stem cell lines, transfection of cultured cells, cloning, monoclonal antibody production, and ELISA assays. Lab included.

10-007-124 Molecular Biology 1 3 credits
Introduces modern molecular biology techniques including basic recombinant DNA techniques and nucleic acid analysis and purification. The polymerase chain reaction, DNA sequence analysis, and DNA fingerprinting are also covered. Lab included.

10-007-136 Laboratory Math for Biotechnology 1 credit
This course introduces mathematical tools that are used in the biotechnology laboratory. Students apply mathematical concepts to solve problems such as: calculating amounts of chemicals required to make solutions, graphing and interpreting data, and calibrating instruments. Basic statistical concepts may also be introduced.

10-102-134 Business Organization & Management (Biotechnology section) 2 credits
This survey course imparts an understanding of the economic and legal environment in which biotechnology companies operate, as well as an understanding of the organization and management of business enterprises.

Career Potential:

- **Research Scientists**
- **Entry Level Scientists**
- **Associate Scientists**
- **Process Scientists**
- **Laboratory Manager**
- **Quality Assurance**
- **Laboratory Supervisor**
- **Team Leader**

More detailed and updated information on this program may be available at : matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Effective: 2010-2011

Biotechnology Laboratory Technician

Program Number: 10-007-2

Associate in Applied Science Degree

Biotechnology & Electron Microscopy Program Cluster

Center for Agriscience and Technologies

Courses offered at Madison Campuses

For information call: (608) 246-6204, (608) 243-4307 or (800) 322-6282 Ext. 6204 or 4307

About the Program

The Biotechnology Laboratory Technician Program emphasizes skills necessary for entry-level employment in bioscience laboratories. The program focuses on techniques basic to the commercial development of products from biological systems. Students acquire proficiency in laboratory skills, effective communications and employment skills. Individuals who like the challenge of laboratory work are encouraged to apply.

Program graduates may seek entry-level employment in public or private laboratories for positions titled laboratory assistant, laboratory technician, laboratory tester or laboratory worker. These laboratories are found in universities, pharmaceutical companies, food processing industries, companies performing research and development, and companies involved in plant and animal breeding.

Check the Madison College Website or with the center office for the following certificates also available: Bioinformatics Certificate, Biotechnology Post-baccalaureate Certificate, and Biotechnology Intensive Post-baccalaureate Certificate.

Unique Requirements for Admission

Admission requires competence in basic mathematics, science and English usage. Suggested coursework for high school students includes algebra, biology and chemistry. Students who enter without high school chemistry and algebra will be required to take equivalent courses at Madison College. Competency will be assessed with a COMPASS test (required), transcripts and/or personal interviews.

Students must receive a grade of C or higher in all program courses and all science courses.

For more information:

Mary Ellen Kraus, mekraus@matcmadison.edu, (608) 246-6322
or Jeanette Mowery, jmowery@matcmadison.edu, (608) 243-4307

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-007-103	Biotechnology Laboratory Skills for a Regulated Workplace	3	1-6
10-007-108	Hazardous Materials (6 weeks)	1	2-2
10-007-109	Biosafety (6 weeks)	1	2-2
10-007-102	Radioisotopes (6 weeks)	1	2-2
10-007-110	Biotechnology Applications	1	3-0
10-007-115	General Cell Biology	4	3-3
10-007-136	Laboratory Math for Biotechnology	1	1-0
10-806-127	Chemistry 1* **OR**	4	3-2
10-806-134	General Chemistry*	(4)	(3-3)
	Semester Total	**16**	
Second Semester			
10-007-104	Chromatography Techniques	3	1-4
10-007-105	Bioprocess Technology	3	1-6
10-007-111	Biotechnology Career Seminar	1	3-0
10-801-195	Written Communication* **OR**	3	3-0
20-801-201	English Composition 1*	(3)	(3-0)
10-806-129	Chemistry 2* **OR**	4	3-2
20-806-201	General, Organic & Biological Chemistry*	(5)	(4-2)
10-007-174	Applied Microbiology	4	2-4
	Semester Total	**18**	

SECOND YEAR			
First Semester			
10-007-122	Protein Bioseparation Methods	3	1-6
10-007-123	Cell Culturing	3	1-6
10-007-124	Molecular Biology 1	3	1-6
10-801-196	Oral/Interpersonal Communications* **OR**	3	3-0
20-801-202	English Composition 2*	(3)	(3-0)
10-809-197	Contemporary American Society* **OR**	3	3-0
20-809-203	Introduction to Sociology*	(3)	(3-0)
10-809-199	Psychology of Human Relations* **OR**	3	3-0
20-809-231	Introduction to Psychology* ~~**OR**~~	(3)	(3-0)
	Semester Total	**18**	
Second Semester			
10-007-112	Biotechnology Employment Skills	1	3-0
10-007-121	Applied Biochemistry	3	2-3
10-007-125	Research Methods in Molecular Biology	3	1-6
10-007-126	Occupational Work Experience	3	0-12
10-809-195	Economics* **OR**	3	3-0
20-809-211	Macroeconomics	(3)	(3-0)
	Elective	3	~~(3-0)~~
	Semester Total	**16**	

*Students may meet some or all of the general studies requirements at Madison College or at another college prior to entering the Biotechnology Program. Students are encouraged to take college transfer courses for educational advancement

Students are assessed for correct placement in English or mathematics courses based on their scores on the COMPASS test or on completion of the appropriate prerequisite(s). Additionally, there may be courses in other subject areas that may use COMPASS scores as prerequisites when reading, writing, math, or critical thinking competencies are required.

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Program Courses

10-007-102 Radioisotopes 1 credit
Surveys potential hazards and safety procedures associated with radioisotopes. Lab exercises include liquid scintillation counting and autoradiography. Co-requisite: 10-806-127 or 10-806-134.

10-007-103 Biotechnology Laboratory Skills for a Regulated Workplace 3 credits
Covers basic concepts and techniques necessary to work effectively in a biotechnology lab. The importance of quality regulations and standards and the role of the technician in producing quality results is emphasized. Laboratory math is introduced and applied. Students learn basic techniques including: measuring, weighing, mixing solutions, following and writing procedures, keeping records, making observations, and using instrument manuals and catalogues. Principles of metrology (measurement) are introduced and students practice using, calibrating, and verifying the performance of instruments. Lab included. Co-requisite: 10-806-127 or 10-806-134, and 10-007-136, or consent of instructor.

10-007-104 Chromatography Techniques 3 credits
Introduces the basic concepts involved in separation of biomolecules. Students complete lab work using a variety of chromatographic methods including: paper, thin layer, gel permeation, gas and high performance liquid chromatography. Students also learn to interpret chromatographic results and practice documentation and reporting skills. Lab included. Prerequisites: 10-007-103, 10-007-136 and 10-806-127 or 10-806-134.

10-007-105 Bioprocess Technology 3 credits
Covers basic techniques of fermentation technology, including the principles of isolation, identification, improvement, preservation and growth of industrial microorganisms. Emphasizes the use of fermentation equipment to obtain products. Lab included. Co-requisite: 10-806-127 or 10-806-134 or consent of instructor.

10-007-108 Hazardous Materials 1 credit
Surveys potential laboratory hazards and safety procedures. Covers regulation of chemicals: flammable, reactive, corrosive, and toxic substances. Lab included. Co-requisite: 10-806-127 or 10-806-134.

10-007-109 Biosafety 1 credit
Surveys potential hazards and safety procedures associated with biohazards including lab animals and pathogens. Lab included. Co-requisite: 10-806-127 or 10-806-134.

10-007-110 Biotechnology Applications 1 credit
Provides a broad introduction to biotechnology including the scientific basis of the technologies and their historical development with an emphasis on current applications in the areas of agriculture, medicine, forensics and the environment.

10-007-111 Biotechnology Career Seminar 1 credit
Includes a discussion of national, state and local biotechnology industries, career options, the ethical, legal and societal issues raised by the use of biotechnology and the regulatory agencies that oversee the industry.

10-007-112 Biotechnology Employment Skills 1 credit
Discusses the specific skills needed for particular areas and careers, ethical issues and the business of biotechnology including the basics of intellectual property law. Each student gives a presentation on their occupational work experience. Co-requisite: 10-007-126.

10-007-115 General Cell Biology 4 credits
Introduction to cells, emphasizing their structure, diversity, chemistry and physiology. Processes of cellular respiration, photosynthesis and division are discussed. Describes genetic principles and molecular activities involved in DNA, RNA and protein synthesis. Lab included.

10-007-121 Applied Biochemistry 3 credits
Introduction to major chemical constituents of cells including proteins, carbohydrates, lipids and nucleic acids. The structure and kinetics of enzymes, reaction mechanisms, and metabolic pathways are also included. Lab included. Prerequisites: 10-007-103, 10-007-115 and 10-806-129 or 20-806-201 or consent of instructor.

10-007-122 Protein Bioseparations Methods 3 credits
Introduces the general strategies commonly used to purify proteins. Specific methods include determining specific activities for enzymes, extraction of proteins from bacterial cells, salting out, dialysis, ion exchange chromatography and polyacrylamide gel electrophoresis. Lab included. Prerequisites: 10-007-103, 10-007-104 and 10-806-129 or 20-806-201 or consent of instructor.

10-007-123 Cell Culturing 3 credits
Covers the basic techniques of plant and animal cell culture. Plant unit includes media preparation isolation of explants and establishment of callus from suspension cultures, growth factor bioassays, regeneration of whole plants from tissue and plant genetic engineering techniques. Mammalian cell unit includes media preparation, maintenance of cultured cells, including human embryonic stem cell lines, transfection of cultured cells, cloning, monoclonal antibody production, and ELISA assays. Lab included. Prerequisite: 10-007-115 or consent of instructor.

10-007-124 Molecular Biology 1 3 credits
Introduces modern molecular biology techniques including basic recombinant DNA techniques and nucleic acid analysis and purification. The polymerase chain reaction, DNA sequence analysis, and DNA fingerprinting are also covered. Lab included. Prerequisite: 10-007-115 or consent of instructor.

10-07-125 Research Methods in Molecular Biology 3 credits
Surveys advanced techniques in molecular biology including Southern analysis, and RNA purification and analysis. The course blends discussion of concepts with practical laboratory experience. Lab included. Prerequisite: 10-007-124 or consent of instructor.

10-007-126 Occupational Work Experience 3 credits
Students work in a biotechnology laboratory. Emphasizes the integration of academics and practical experiences. Prerequisites: Successful completion of all program courses in the first three semesters of the program, or consent of instructor and successful completion of a performance exam. Co-requisite: 10-007-112.

10-007-136 Laboratory Math for Biotechnology 1 credit
Course introduces mathematical tools that are used in the biotechnology laboratory. Students apply mathematical concepts to solve problems such as: calculating amounts of chemicals required to make solutions, graphing and interpreting data, and calibrating instruments. Basic statistical concepts may also be introduced. Prerequisite: satisfactory COMPASS Math Placement Test score.

10-007-174 Applied Microbiology 4 credits
This survey course includes the structure, function, ecology, nutrition, physiology, and genetics of microorganisms in industrial, agricultural, food and medical microbiology. It also includes an introduction to standard techniques and procedures used in the microbiology laboratory. Prerequisite: 10-007-115.

Career Potential:

- **Biotechnology Research Technicians**
  Complete scientific work in academic research laboratories, government research laboratories and biotechnology companies under direct supervision.
- **Biotechnology Production Technicians**
  Produce useful products using biological systems including bacterial and yeast cells, plants and animals.
- **Laboratory Technicians**
  Complete scientific work and conduct experiments in research and development or production laboratories in various biological and biochemical companies and private or public agencies.
- **Quality Control/Assurance Technicians**
  Check product performance/ characteristics to ensure regulatory compliance and minimize liability using physical, chemical and biological test equipment and instrumentation to ensure that the product is within acceptable tolerance.

With additional education and/or work experience, graduates may find employment as:

- **Research Scientists**
- **Entry Level Scientists**
- **Associate Scientists**
- **Process Scientists**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Biotechnology Post-baccalaureate Certificate

Program Number: 90-007-1

Certificate

Biotechnology & Electron Microscopy Program Cluster

Center for Agriscience and Technologies

Courses offered at Madison Campuses

For information call: (608) 246-6204, (608) 243-4307 or (800) 322-6282 Ext. 6204 or 4307

About the Certificate

The certificate curriculum includes eight courses from the Biotechnology Lab Technician program. Students may elect to take either Cell Culturing, 10-007-123, or Protein Bioseparations Methods, 10-007-122. All other courses in the curriculum, or their equivalent from another college, are required to obtain a certificate. The curriculum may be completed in two semesters or longer.

Students completing this certificate will have the laboratory skills and knowledge needed for entry-level employment in biotechnology laboratories in both the public and private sector. Students are required to meet with the program director for advising and course scheduling plans.

This certificate is perfect for individuals who have a theoretical bioscience background but need biotechnology laboratory skills in order to improve employment prospects.

Unique Requirements for Admission

Prerequisites: 1) a bachelor's degree in a biological science and consent of program director; 2) two semesters of college chemistry; 3) one semester of microbiology with laboratory component; 4) two semesters of general biology and 5) a cell biology or genetics course within the last seven years. Applicants with missing prerequisites may complete those courses at Madison College. Apply directly to the Center. The completed Application should include verification of degree, or course work, if necessary. No application fee is required for this certificate.

Unique Requirements for Completion

This certificate will be awarded upon completion of the requirements with a minimum of a 2.0 grade average and no course grade lower than a C. Students are responsible for contacting the Center upon completion of the required classes. Certificate will be awarded after completion of all requirements is verified.

For more information:

Lisa Seidman, lseidman@matcmadison.edu, (608) 246-6204 or
Jeanette Mowery, jmowery@matcmadison.edu, (608) 243-4307

Curriculum

Courses		Credits	Hrs/week Lec-Lab
10-007-103	Biotechnology Laboratory Skills for a Regulated Workplace	3	1-6
10-007-105	Bioprocess Technology	3	1-6
10-007-104	Chromatography Techniques	3	1-4
10-007-124	Molecular Biology 1	3	1-6
10-007-122	Protein Bioseparation Methods **OR**	3	1-6
10-007-123	Cell Culturing	(3)	1-6
10-007-125	Research Methods in Molecular Biology	3	1-6
10-007-121	Applied Biochemistry	3	2-3
	Semester Total	**21**	

Certificate Courses

10-07-103 Biotechnology Laboratory Skills for a Regulated Workplace 3 credits
Covers basic concepts and techniques necessary to work effectively in a biotechnology lab. The importance of quality regulations and standards and the role of the technician in producing quality results is emphasized. Laboratory math is introduced and applied. Students learn basic techniques including: measuring, weighing, mixing solutions, following and writing procedures, keeping records, making observations, and using instrument manuals and catalogues. Principles of metrology (measurement) are introduced and students practice using, calibrating, and verifying the performance of instruments. Team-based projects simulate the application of these methods in a biotechnology research and development environment.

10-007-104 Chromatography Techniques 3 credits
Introduces the basic concepts involved in separation of biomolecules. Students complete lab work using a variety of chromatographic methods including: paper, thin layer, gel permeation, gas and high performance liquid chromatography. Students also learn to interpret chromatographic results and practice documentation and reporting skills.

10-007-105 Bioprocess Technology 3 credits
Covers basic techniques of fermentation technology, including the principles of isolation, identification, improvement, preservation and growth of industrial microorganisms. Emphasizes the use of fermentation equipment to obtain products.

10-007-121 Applied Biochemistry 3 credits
Introduction to major chemical constituents of cells including proteins, carbohydrates, lipids and nucleic acids. The structure and kinetics of enzymes, reaction mechanisms, and metabolic pathways are also included.

10-07-122 Protein Biosperations Methods 3 credits
Introduces modern molecular biology techniques including basic recombinant DNA techniques and nucleic acid analysis and purification. The polymerase chain reaction, DNA sequence analysis, and DNA fingerprinting are also covered. Lab included.

10-007-123 Cell Culturing 3 credits
Covers the basic techniques of plant and animal cell culture. Plant unit includes media preparation isolation of explants and establishment of callus from suspension cultures, growth factor bioassays, regeneration of whole plants from tissue and plant genetic engineering techniques. Mammalian cell unit includes media preparation, maintenance of cultured cells, including human embryonic stem cell lines, transfection of cultured cells, cloning, monoclonal antibody production, and ELISA assays. Lab included.

10-007-124 Molecular Biology 1 3 credits
Introduces modern molecular biology techniques including basic recombinant DNA techniques and nucleic acid analysis and purification. The polymerase chain reaction, DNA sequence analysis, and DNA fingerprinting are also covered.

10-007-125 Research Methods in Molecular Biology 3 credits
Surveys advanced techniques in molecular biology including Southern analysis, and RNA purification and analysis. The course blends discussion of concepts with practical laboratory experience.

Career Potential:

- **Research Scientists**
- **Entry Level Scientists**
- **Associate Scientists**
- **Process Scientists**
- **Laboratory Manager**
- **Quality Assurance**
- **Laboratory Supervisor**
- **Team Leader**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Electron Microscopy

Effective: 2010-2011

Program Number: 10-636-1

Associate in Applied Science Degree

Biotechnology and Electron Microscopy Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Program

The Electron Microscopy program is a two-year program in which students learn to operate electron microscopes and related equipment, both scanning (SEM) and transmission (TEM). The preparation of biological and material samples for observation by TEM or SEM is an important part of the program. Interpretation of sample observations, including metallurgical structures and biological ultrastructure, is included.

Considerable emphasis is placed on communication skills, computer-image processing, X-ray microanalysis and maintenance of electron microscopes and related equipment. The entire program stresses a laboratory, hands-on approach to provide a graduating student with confident and proficient job-entry performance.

Unique Requirements for Admission

It is strongly recommended that students take the math sequence of Algebra 1 and Algebra 2 to best prepare them for this program. In addition, one year each of biology and chemistry is highly recommended. Prior to registration, all students are required to consult with a faculty member. If high school chemistry has not been completed, it is recommended that 10-806-134 General Chemistry, be taken before beginning the program.

The Electron Microscopy Program participates in MAAP (Mandatory Assessment, Advising and Placement). This requires new students to complete the COMPASS or ASSET test. Advisement and course placement in English and math (and some science courses) are done based on test results. Testing should be completed prior to admission.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-636-111	Scanning Electron Microscopy	3	2-3
10-636-112	Transmission Electron and Atomic Force Microscopy	4	3-3
10-636-113	EM Image Processing 1	2	1-2
10-636-115	EM Photography & Lab Safety	2	2-0
10-804-118	Intermediate Algebra with Applications **OR**	3	2-2
20-804-201	Intermediate Algebra	(4)	(4-0)
10-806-134	General Chemistry **OR**	4	3-2
20-806-201	General Organic and Biological Chemistry	(5)	(4-2)
	Semester Total	**18**	
Second Semester			
10-636-121	EM Biological Sample Preparation	3	2-2
10-636-122	EM Physical Preparation and FIB	4	3-3
10-636-123	EM Image Processing 2	2	1-2
10-801-195	Written Communication	3	3-0
10-804-189	Introductory Statistics **OR**	3	3-0
20-804-240	Basic Statistics	(4)	(4-0)
10-806-182	Forces, Fields & Energy	3	2-2
	Semester Total	**18**	

SECOND YEAR			
First Semester			
10-636-131	Advanced Biological Techniques and Ultrastructure Studies	3	2-2
10-636-132	Diffraction and Materials	4	3-3
10-636-133	Image Analysis	2	1-2
10-636-135	Laboratory and Microscope Maintenance	3	2-2
10-801-197	Technical Reporting	3	3-0
	Semester Total	**15**	
Second Semester			
10-636-141	X-Ray Microanalysis	4	3-3
10-636-143	Special EM Techniques and Spectroscopy	3	2-3
10-636-147	Electron Microscopy Special Project	2	0-6
10-809-197	Contemporary American Society	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Semester Total	**15**	

Note: Students are assessed for correct placement in English or mathematics courses based on their scores on the COMPASS test or on completion of the appropriate prerequisite(s). Additionally, there may be courses in other subject areas that may use COMPASS scores as prerequisites when reading, writing, math, or critical thinking competencies are required.

Program Courses

10-636-111 Scanning Electron Microscopy 3 credits
Provides extensive laboratory work in which students become proficient in the operation of scanning electron microscopes (SEMs). Students learn electron-specimen interactions, image processing, effects of microscope variables on the image and the use of various microscope accessories and outputs. Microscope optics are also introduced.

10-636-112 Transmission Electron and Atomic Force Microscopy 4 credits
Students become proficient in the alignment procedures, operation and theory of transmission electron microscopes (TEMs). Introduction to basic theory and operation of atomic force microscopes (AFMs). X-ray microanalysis will also be introduced.

10-636-113 EM Image Processing 1 2 credits
This course studies the theory and application of digital image acquisition from microscopes. Students will learn how to import these images into a PC for incorporation into scientific documents. Additionally, the course will address issues of resolution, archiving, the differences between available image file formats and compression methods, and differences between various input and output sources.

10-636-115 EM Photography Techniques and Lab Safety 2 credits
Students examine safety concerns and procedures encountered in an EM laboratory. The theory of optics and the practical application of light microscopy in science are studied. Film and principles of photography are also discussed.

10-636-121 Biological Sample Prep EM 3 credits
Lecture-lab course covering biological sample preparation for both TEM and SEM. Includes chemical and cryo fixation, embedment, ultramicrotomy and staining methods. Solution preparation and laboratory techniques are also performed. Prerequisite: grade of C or better in both 10-636-111 and 10-636-112 or consent of the instructor.

10-636-122 EM Physical Preparation and FIB 4 credits
Lecture-lab course covering specimen preparation for both SEM and TEM. Topics include replica preparation, ion milling, polishing and thinning methods. Material studies consider identification of metallurgical structures, fracture types, dislocation analysis and microstructures of geologic samples, plastics and ceramics. Prerequisite: grade of C or better in both 10-636-111 and 10-636-112 or consent of the instructor.

10-636-123 EM Image Processing 2 2 credits
Advanced development of digital processing by enhancement and manipulation of EM images. Scientific filtering protocols, convolution masks, Fourier transforms, and Gaussian filters are applied in order to produce image for scientific and aesthetic purposes. Included are modules on scientific interpretation, analysis, and output media. This course explores in depth relationships between image quality at the microscope and output to various media. Scientific poster layout and design using Adobe InDesign and slide presentation using PowerPoint are covered. Prerequisite: grade of C or better in 10-636-113.

10-636-131 Advanced Biological Techniques and Ultrastructure Studies 3 credits
Students prepare biological samples for both SEM and TEM using methods not previously presented, such as colloidal gold labeling. Includes ultrastructure studies enabling students to identify features encountered in micrographs for interpretation and analysis. Prerequisite: grade of C or better in both 10-636-121 and 10-636-122 or consent of instructor.

10-636-132 Diffraction and Materials 4 credits
Interpretation and analysis is made for crystals using electron diffraction methods. Powder diffraction is introduced allowing compounds to be identified. Concepts of reciprocal lattice space and crystal structures are included. Prerequisite: grade of C or better in both 10-636-121 and 10-636-122 or consent of the instructor.

10-636-133 Image Analysis 2 credits
Involves statistically measured and mathematical transformations of both analog and digital images. Topics include sampling techniques, stereology, three-dimensional reconstruction and analysis, cell or grain-size distribution and aspect-ratio-analysis, Fourier Transform analysis, and spatial filtering of images. Students will develop cross-platform computer skills with programs including: Adobe PhotoShop, NIH Image, ImagePro Plus, and VoxBlast. Prerequisite: grade of C or better in 10-636-123 or consent of instructor.

10-636-135 Laboratory and Microscope Maintenance 3 credits
Students use oscilloscopes, vacuum leak checkers and other metrology equipment used for troubleshooting methods for the EM lab. Hands-on diagnostics, repairs and routine maintenance are made by students in EM lab setting.

10-636-141 X-Ray Microanalysis 4 credits
Students perform elemental analysis with energy dispersive X-ray systems on both TEM and SEMs. The use of matrix corrections, qualitative and quantitative computer analysis routine will constitute a major part of this course. Prerequisite: grade of C or better in both 10-636-131 and 10-636-132 or consent of the instructor.

10-636-143 Special EM Techniques and Spectroscopy 3 credits
Laboratory course in which students perform tasks including voltage contrast, electron beam induced current (EBIC) and electron channeling. Presents other microscopy methods, such as secondary ion mass spectroscopy (SIMS), focus ion beam (FIB) and Auger microscopes. Prerequisite: grade of C or better in both 10-636-131 and 10-636-132.

10-636-147 Electron Microscopy Special Project 2 credits
Students choose an independent project resulting in a final report that will include micrographs from both TEMs and SEMs and x-ray analysis. Prerequisite: grade of C or better in Electron Microscopy Program sequence to date or consent of instructor.

Career Potential:

- **Integrated Circuit Microscopic and Failure Analysts**
  Perform TEM, SEM, FIB, X-ray and AFM analysis to characterize micro-electronic components.
- **Biological Research Electron Microscopy Technicians**
  Prepare and examine plants and tissues for ultrastructural analysis.
- **Diagnostic Pathology Electron Microscopists**
  Produce micrographs for ultimate clinical diagnosis for a variety of diseases.
- **Materials Research Electron Microscopy Technicians**
  Evaluate metals, ceramics, plastics and geologic samples by Electron Microscopy and X-ray analysis.
- **Sales and/or Applications Representatives**
  Employment with microscope manufacturers, selling or demonstrating equipment, or instructing customers on equipment use.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Administrative Professional

Program Number: 10-106-6

Associate in Applied Science Degree

Business Technology Program Cluster

Center for Agriscience and Technologies

Program offered at Madison, Fort Atkinson, Reedsburg, Watertown and Portage campuses; and completely online

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Program

The Administrative Professional Program prepares individuals in the software/hardware, administrative, and interpersonal skills needed to perform the duties of administrative support personnel. With additional education and/or work experience, there is opportunity for advancement into supervisory or managerial positions. To graduate from the program, a student must receive a grade of C or higher in all program courses.

Graduates of this program typically earn $33,000 per year.

Unique Requirements for Admission

Recommendations for admission: Beginning PowerPoint competence. Keyboarding speed of 50 wpm or take Keyboarding Skillbuilding. It is highly recommended that each program student has access to a computer. Note: All Microsoft Office software courses use the 2007 version.

Earn your Administrative Professional degree completely online!

The benefits of completing a degree online include courses available 24 hours a day, seven days a week; an opportunity to choose your own study time within course guidelines; an ability to join in online discussions with professionals around the world and stay current with new business technology and trends. For more information about the online Administrative Professional degree program, contact (800) 322-6282 ext. 6800 or (608) 246-6800.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-103-135	Windows XP (OR Windows Vista 10-103-124 OR Windows 7 10-103-123) (each, Qtr. 1)	1	0.75-2.25
10-103-137	Word–Beginning (Qtr. 1)	1	0.75-2.25
10-103-136	Word–Intermediate (Qtr. 2)	1	0.75-2.25
10-106-102	Professional Profile	1	1-0
10-106-139	Keyboard Skillbuilding	1	0-2
10-106-108	Proofreading and Editing	3	3-0
10-106-182	Information Technology Concepts	3	3-0
10-801-195	Written Communication	3	3-0
10-804-123	Math with Business Applications	3	3-0
	Semester Total	**17**	
Second Semester			
10-101-108	Applied Accounting 1	3	3-0
10-103-133	Excel–Beginning (Qtr. 3)	1	0.75-2.25
10-103-139	Excel–Intermediate (Qtr. 4)	1	0.75-2.25
10-103-145	Access–Beginning (Qtr. 3)	1	0.75-2.25
10-103-125	Access–Intermediate (Qtr. 4)	1	0.75-2.25
10-103-165	Outlook (Qtr. 3)	1	0.75-2.25
10-106-103	Records Management	2	2-0
10-106-133	Word Processing Applications	2	2-0
10-106-164	Customer Contact Skills	1	1-0
10-106-172	Administrative Office Management	2	2-0
10-801-196	Oral/Interpersonal Communication	3	3-0
	Semester Total	**18**	

SECOND YEAR			
First Semester			
10-103-153	PowerPoint Advanced (Qtr. 2)	1	0.75-2.25
10-103-126	Word–Advanced (Qtr. 1)	1	0.75-2.25
10-103-132	Excel–Advanced (Qtr. 2)	1	0.75-2.25
10-103-168	Dreamweaver	1	0.75-2.25
10-106-106	Business Writing and Research	2	1-2
10-106-134	Software Simulation	2	2-0
10-106-190	Professional Development	1	1-0
10-809-197	Contemporary American Society	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Elective	1	E
	Semester Total	**16**	
Second Semester			
10-103-140	Publisher (Qtr. 4)	1	0.75-2.25
10-106-186	Project Management and Coordination	2	2-0
10-106-187	Exploring Business Technologies	2	2-0
10-106-194	Career Management (Qtr. 4)	1	1-0
10-106-195	Internship	1	0-4
10-801-198	Speech	3	3-0
10-809-172	Race, Ethnic and Diversity Studies	3	3-0
	Elective	3	E
	Semester Total	**16**	

Program Courses

10-106-102 Professional Profile 1 credit
Concentrates on the knowledge, attitudes, and skills necessary to succeed in the Administrative Professional program and to grow personally and professionally. Topics include mentoring, career success, campus resources, paper and electronic skills portfolio, core abilities, internship requirements, professional organizations, time management skills, personality traits, values and work environment preferences, and self-assessment of present career skills.

10-106-103 Records Management 2 credits
Fundamentals of managing the record life cycle; alphabetic, numeric, subject, geographic filing; electronic file management; supplies and equipment; charge-out procedures; retention schedules; transfer methods; control measurements; imaging systems and security of information. Follows recommendations of the Association of Records Managers and Administrators (ARMA).

10-106-106 Business Writing and Research 2 credits
This course is designed for students to learn the basics of effective writing and research skills needed for success in the business world. Students will also review grammar and punctuation rules. Emphasis will be placed on simulating real business writing and research situations. Students will write letters, memos, electronic messages and other employment-related correspondence. Prerequisites: 10-106-108, 10-106-133, and10-801-195.

10-106-108 Proofreading and Editing 3 credits
Develop proofreading skills: punctuation, grammar, spelling and usage errors. Edit documents: appropriate content, conciseness, clarity, and point of view.

10-106-133 Word Processing Applications 2 credits
Utilize word processing skills to format letters, memos, tables and reports. Develop workplace skills: proofreading and decision-making. Prerequisites: 10-106-101 or touch keyboarding skills, and 10-103-137. 10-103-136 must be taken prior to or in the same semester.

10-106-134 Software Simulation 2 credits
This course uses a simulation that integrates multiple software applications and features of Windows, Word, Excel, Access, and PowerPoint programs. Students manage information, apply critical-thinking skills to solve problems, research topics, and compose documents. Prerequisites: 10-103-137, 10-103-136, 10-103-133, 10-103-145 and 10-103-143.

10-106-139 Keyboard Skillbuilding 1 credit
Identify keyboarding weaknesses through diagnostic tests and analyses. Refine keyboarding technique, increase speed and improve accuracy through individualized corrective practice. Prerequisite: 10-106-101 or touch keyboarding experience.

10-106-164 Customer Contact Skills 1 credit
Examines what is the foundation of good customer service, identifies internal/external customers, examines questioning techniques, explores listening skills, examines customer surveys, discusses dealing with challenging customers, and examines the role of the customer service representative in today's business world.

10-106-172 Administrative Office Management 2 credits
This course emphasizes the office skills necessary to succeed in a global business in the 21st century. Topics covered include: team building, travel, meetings and minute taking, Parliamentary Procedures, management and supervision, cultural diversity, ergonomics, and stress, time, and anger management.

10-106-182 Information Technology Concepts 3 credits
Introduces students to computer terminology, basic functions of the computer processor, various types of computer memory, computer input/output devices, application software, system software, electronic communication devices, Internet searches, various communication methods used on the Internet, computer security concerns, and computer ethics. Prerequisite: access to the Internet.

10-106-186 Project Management and Coordination 2 credits
Plan and coordinate projects, develop timelines, determine priorities, increase individual and team productivity, control the workday and allocate resources using graphic tools such as MS Project software and GANTT charts. Project management and coordination techniques and concepts are learned by examining case studies and completing a project.

10-106-187 Exploring Business Technologies 2 credits
Research current and emerging technologies such as tablet and laptop computers, scanners, faxes, PDF files, electronic meetings/video conferencing, Zoomerang surveys, podcasting, and voice recognition software. Create an electronic portfolio. Student must be in final semester of program or obtain consent of instructor.

10-106-190 Professional Development 1 credit
Using the internet and traditional methods, research the job market, develop a job search/career portfolio, and explore networking. Create a professional image for job search. The portfolio includes a resume, cover letter, thank-you letter, reference sheet, work samples and other job search materials. Prerequisite: 10-801-195

10-106-194 Career Management 1 credit
Identification of factors associated with job success: conflict resolution, business and dining etiquette, sexual harassment, ethics, career goals, and performance appraisal. Prerequisite: Student should be in last semester of program.

10-106-195 Internship 1 credit
Students complete a 72-hour internship in an office setting supervised by a cooperating employer. The office setting is a business, medical, or legal office depending on the student's program. Must be in one of the last 2 semesters before graduation. Prerequisite: 10-106-102.

Recommended Electives

10-101-139	Quickbooks Pro	1 credit
10-102-160	Business Law 1	3 credits
10-103-141	Adobe Acrobat	1 credit
10-103-164	Flash–Beginning	1 credit
10-103-167	Fireworks–Beginning	1 credit
10-103-186	MS Project	2 credits
10-109-102	Fundamentals of Meeting Management	3 credits

Career Potential:

- **Administrative Assistant**
- **Administrative Professional**
- **Administrative Support**
- **Desktop Publisher Specialist**
- **Information Coordinator**
- **Information Processing Specialist**
- **Office Assistant**
- **Office Support**
- **Program Assistant**
- **Project Coordinator**
- **Receptionist**
- **Secretary**
- **Transcriptionist**
- **Word Processor**

With additional educational and/or work experience, graduates may find employment as:

- **Administrative Coordinator**
- **Executive Assistant**
- **Executive Secretary**
- **Executive Staff Assistant**
- **Office Manager**
- **Instructor/Trainer**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/10

Basic Medical Reception Skills Certificate

Program Number: 90-106-4

Certificate

Business Technology Program Cluster

Center for Agriscience and Technologies

Certificate courses are offered at Madison; most courses are also offered at the Fort Atkinson, Reedsburg, Watertown and Portage campuses and online.

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Certificate

Clerical jobs are among the top five occupations for projected growth nationally. Madison College has developed this certificate to help you get hired, promoted or to update your skills by providing basic medical reception skills used in today's modern medical offices. Full- and part-time positions are available in small and large healthcare organizations throughout Wisconsin and the United States. Typical working hours in this occupation are weekday business hours, generally 8:00 a.m. to 5:00 p.m. with some variation.

The skills obtained in the Basic Medical Reception Skills Certificate may be applied to the Medical Administrative Specialist Associate in Applied Science degree program and the Medical Transcription Technical Diploma program. In addition, many of the certificate credits may be applied to other programs at Madison College.

This certificate is available to those working full time seeking skills to change careers. Current Madison College students may complete this certificate in conjunction with their existing course work. Most courses are available both online and in the classroom.

Students who successfully complete this certificate typically earn $9.50 to $13.00 per hour based on their experience and other job skills.

Unique Requirements for Admission

This certificate does not require an application to the college. Students register for individual courses during the open registration period each semester. It is the student's responsibility to request the certificate from the Center for Agriscience and Technologies office (608-246-6800) once all required classes have been completed and grades have been received. A grade of C or better is required in each course to award the certificate.

Curriculum

Courses		Credits	Hrs/week Lec-Lab
10-106-101	Keyboarding Introduction	1	0-2
10-103-123	Windows 7 **OR**	1	0.75-2.25
10-103-135	Windows XP **OR**	(1)	(0.75-225)
10-103-124	Windows Vista	(1)	0.75-2.25
10-103-137	Word–Beginning*	1	0.75-2.25
10-106-165	Medical Office Procedures	3	3-0
10-103-133	Excel–Beginning*	1	0.75-2.25
10-106-139	Keyboard Skillbuilding	1	0-2
10-106-164	Customer Contact Skills	1	0.75-2.25
10-106-178	Medical Language for the Business Professional	2	2-0
	Total	**11**	

*Prerequisite: Windows

Courses are listed in suggested sequence.

Microsoft® is a registered trademark of the Microsoft Corporation.

If you have finished the courses for this certificate, complete the certificate form to receive an official certificate from the Business Technology Department: http://matcmadison.edu/bus_tech_certificate_ap

Courses

10-103-123 Windows 7 1 credit
Introduces the Windows 7 operating system: work with common elements (windows, menus, toolbars, panes, dialog boxes and Help), use accessory programs, manage files/folders, customize using the Control Panel and maintain the computer.

10-103-124 Windows Vista 1 credit
Introduces the Windows Vista operating system: work with common elements (Windows, menus, toolbars, panes, dialog boxes, and Help), use accessory programs, manage file/folders using MY Computer and Explorer, customize using the Control Panel and maintain the computer.

10-103-133 Excel–Beginning 1 credit
Introduction to Excel spreadsheet software. Create, edit, save, format, print, perform calculations, copy/move text and formulas, create charts, create complex formulas and expand use of functions. Prerequisite: Competency in Windows.

10-103-135 Windows XP 1 credit
Introduces the Windows XP operating system: work with common elements (windows, menus, toolbars, panes, dialog boxes, and Help), use accessory programs, manage files/folders using My Computer and Explorer, customize using the Control Panel and maintain the computer.

10-103-137 Word–Beginning 1 credit
Introduction to Microsoft's word processing software. Create, edit, save, format and print basic documents; cut/copy/paste and find/replace text; apply font styles and effects; add bullets and numbering; work with tabs and indents; align text; apply borders and shading; use wizards and templates to produce documents; insert headers/footers; apply different formatting to document sections; create columns; insert Clip Art. Create and format tables, modify rows and columns, perform calculations, sort table data, customize tables. Prerequisite: Competency in Windows.

10-106-101 Keyboarding Introduction 1 credit
Learn computer keyboarding (alphabetic and numeric keypad) using proper technique; develop speed and accuracy.

10-106-139 Keyboard Skillbuilding 1 credit
Identify keyboarding weaknesses through diagnostic tests and analyses. Refine keyboarding technique, increase speed and improve accuracy through individualized corrective practice.

10-106-164 Customer Contact Skills 1 credit
Examines what is the foundation of good customer service, identifies internal/external customers, examines questioning techniques, explores listening skills, and examines customer service representative in today's business world.

10-106-165 Medical Office Procedures 3 credits
Emphasizes the electronic medical office procedures: communication, reception, appointment scheduling, record keeping, records management, telephone procedures, entering daily transactions, billing and collecting, banking procedures, preparing payroll, handling routine business correspondence, keeping an inventory of supplies and completing medical office simulations. Prerequisite: 10-103-137.

10-106-178 Medical Language for the Business Professional 1 2 credits
This course is designed to give the beginning business student an insight into medical language. Students will explore how medical terms are formed, become familiar with the meaning of many word roots, prefixes, and suffixes, and spell, define, and pronounce many medical terms by understanding word components. Students will also exhibit mastery in the use of medical dictionaries and reference materials. Fundamentals will be discussed as they relate to evaluation of health practices by body system and by the body as a whole.

Career Potential:

- **Medical Receptionist**
- **Medical Appointment Scheduler**
- **Department/Clinic Assistant-Associate**
- **Medical Customer Service Representative**

With advanced training students may find employment as:

- **Medical Administrative Specialist**
- **Medical Transcriptionist**
- **Medical Word Processing Operator**
- **Department/Clinic Assistant – Objective, Senior**
- **Health Unit Coordinator**
- **Medical Coding Specialist**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Business Software Applications Specialist

Program Number: 31-106-9

One-Year Technical Diploma

Business Technology Program Cluster

Center for Agriscience & Technologies

Program offered at Madison, Fort Atkinson, Reedsburg, Watertown and Portage campuses; and completely online

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Program

The Business Software Applications Specialist Program gives the student an understanding of the general business activities required of office employees. Software skills, along with customer service and interpersonal skills, are emphasized. To succeed as a Business Software Applications Specialist, students should have a mastery of software skills, a mastery of English fundamentals, enjoy working with people, enjoy problem solving, and be detail oriented. This program is also available completely online. In order to graduate from the program, students must receive a grade of C or higher in all program courses.

Graduates of this program typically earn $1,800 per month.

Program Prerequisites

Before entering the Business Software Applications Specialist Program, students should have Intro to Keyboarding, 10-106-101, or the ability to verify keyboarding proficiency. Students not meeting this prerequisite may take Intro to Keyboarding during their first quarter of the program.

Note: all Microsoft Office courses use the 2007 version.

Earn your Business Software Applications Specialist degree completely online!

The benefits of completing a degree online include courses available 24 hours a day, seven days a week; an opportunity to choose your own study time within course guidelines; an ability to join in online discussions with professionals around the world and stay current with new business technology and trends. For more information about the online Business Software Applications Specialist degree program, contact the Business Technology office at (800) 322-6282 ext. 6800 or (608) 246-6800.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-103-123	Windows (Qtr 1) *OR*	1	0.75-2.25
10-103-135	Windows XP (Qtr 1) *OR*	(1)	(0.75-2.25)
10-103-124	Windows Vista (Qtr 1)	(1)	(0.75-2.25)
10-103-137	Word–Beginning (Qtr 1)	1	0.75-2.25
10-103-136	Word–Intermediate (Qtr 2)	1	0.75-2.25
10-103-143	PowerPoint (Qtr 2)	1	0.75-2.25
10-106-103	Records Management	2	2-0
10-106-139	Keyboard Skillbuilding 1[a]	1	0-2
10-106-182	Information Technology Concepts	3	3-0
10-801-195	Written Communication	3	3-0
10-804-123	Math with Business Applications	3	3-0
	Semester Total	**16**	
Second Semester			
10-103-125	Access–Intermediate (Qtr 4)	1	0.75-2.25
10-103-126	Word–Advanced (Qtr 3)	1	0.75-2.25
10-103-133	Excel–Beginning (Qtr 3)	1	0.75-2.25
10-103-139	Excel–Intermediate (Qtr 4)	1	0.75-2.25
10-103-140	Publisher (Qtr 4)	1	0.75-2.25
10-103-145	Access–Beginning (Qtr 3)	1	0.75-2.25
10-103-165	Outlook	1	0.75-2.25
10-106-108	Proofreading/Editing	3	3-0
10-106-133	Word Processing Applications	2	2-0
10-106-164	Customer Contact Skills	1	1-0
10-106-172	Administrative Office Management	2	2-0
10-106-190	Professional Development (Qtr 3)	1	1-0
10-106-194	Career Management (Qtr 4)	1	1-0
	Semester Total	**17**	

[a] May receive advanced standing if able to verify keyboarding rate of 50 wpm.

All of the above credits also apply to the Administrative Professional Program.

Note: Students are assessed for correct placement in English or mathematics courses based on their scores on the COMPASS test or on completion of the appropriate prerequisite(s). Additionally, there may be courses in other subject areas that may use COMPASS scores as prerequisites when reading, writing, math, or critical thinking competencies are required.

Program Courses

10-106-103 Records Management 2 credits
Fundamentals of managing the record life cycle; alphabetic, numeric, subject, geographic filing; electronic file management; supplies and equipment; charge-out procedures; retention schedules; transfer methods; control measurements; imaging systems and security of information. Follows recommendations of the Association of Records Managers and Administrators (ARMA).

10-106-108 Proofreading/Editing 3 credits
Develop proofreading skills: punctuation, grammar, spelling and usage errors. Edit documents: appropriate content, conciseness, clarity, point of view.

10-106-133 Word Processing Applications 2 credits
Utilize word processing skills to format letters, memos, tables and reports. Develop workplace skills: proofreading and decision-making. Prerequisites: Keyboarding Introduction (10-106-101) or touch keyboarding skills, Word-Beginning (10-103-137) AND Word-Intermediate (10-103-136).

10-106-139 Keyboard Skillbuilding 1 1 credit
Identify keyboarding weaknesses through diagnostic tests and analyses. Refine keyboarding technique, increase speed and improve accuracy through individualized corrective practice. Prerequisite: Keyboarding Introduction (10-106-101) or touch keyboarding experience.

10-106-164 Customer Contact Skills 1 credit
Examines what is the foundation of good customer service, identifies internal/external customers, examines questioning techniques, explores listening skills, and examines customer service representative in today's business world.

10-106-172 Administrative Office Management 2 credits
Emphasizes technology and procedures for office management. Includes practical experience in information processing, telecommunications, written communications, records management, presentations, teamwork, ethics, stress and time management, customer service, travel arrangements and meeting planning.

10-106-182 Information Technology Concepts 3 credits
Introduces students to computer terminology, basic functions of the computer processor, various types of computer memory, computer input/output devices, application software, system software, electronic communication devices, Internet searches, various communication methods used on the Internet, computer security concerns, and computer ethics. Prerequisite: Access to the Internet.

10-106-190 Professional Development 1 credit
Using the internet and traditional methods, research the job market, develop a job search/career portfolio, explore networking, prepare for employment tests, and practice for job interviews. Create a professional image for job search. The portfolio includes but is not limited to a resume, cover letter, thank-you letter, reference sheet, job application form, and work samples.

10-106-194 Career Management 1 credit
Identification of factors associated with job success: conflict resolution, business and dining etiquette, sexual harassment, ethics, career goals, and performance appraisal. Prerequisite: Student should be in last semester of program.

Career Potential:

- **Administrative Services Coordinator**
- **Customer Service Associate**
- **Office Assistant**
- **Program Assistant**
- **Receptionist-Data Entry**
- **Secretarial Assistant**
- **Word Processor**

With advanced training graduates may find employment as:

- **Administrative Professional**
- **Executive Assistant**
- **Executive Secretary**
- **Information Coordinator**
- **Office Manager**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/10

Certificates in Microsoft® Office -Advanced

Program Number: 90-103-5

Certificates

Business Technology Program Cluster

Center for Agriscience and Technologies

Certificate courses are offered at Madison; most courses are also offered at the Fort Atkinson, Reedsburg, Watertown and Portage campuses and online; some of them are also available in a bilingual format

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Certificates

Madison College has developed basic and advanced certificates in Microsoft® Office products that can help you get hired, get promoted, or update your skills. These computer skills are essential for work in today's modern offices. Both certificates are available either online or in the classroom.

Students who successfully complete this certificate typically earn $10.00 to $12.00 per hour based on their experience and other job skills.

Unique Requirements for Admission

This certificate does not require an application to the college. Students register for individual courses during the open registration period each semester. It is the student's responsibility to request the certificate from the Center for Agriscience and Technologies office (608-246-6800) once all required classes have been completed and grades have been received. A grade of C or better is required in each course to award the certificate.

Microsoft® is a registered trademark of the Microsoft Corporation.

Note: All Microsoft Office courses use the 2007 version.

Curriculum

	BASIC Certificate in Microsoft® Office	Credits	Hrs/week Lec-Lab
10-103-123	Windows 7 (Qtr 1) *OR*	1	0.75-2.25
10-103-135	Windows XP (Qtr 1) *OR*	(1)	(0.75-2.25)
10-103-124	Windows Vista (Qtr 1)	(1)	(0.75-2.25)
10-103-165	Outlook	1	0.75-2.25
10-103-137	Word–Beginning	1	0.75-2.25
10-103-133	Excel–Beginning	1	0.75-2.25
10-103-145	Access–Beginning	1	0.75-2.25
10-103-143	PowerPoint	1	0.75-2.25
	Total	**6**	

ADVANCED Certificate in Microsoft® Office
(Choose six courses from those listed below.)

10-103-125	Access–Intermediate	1	0.75-2.25
10-103-126	Word–Advanced	1	0.75-2.25
10-103-127	Access–Advanced	1	0.75-2.25
10-103-132	Excel–Advanced	1	0.75-2.25
10-103-136	Word–Intermediate	1	0.75-2.25
10-103-139	Excel–Intermediate	1	0.75-2.25
10-103-140	Publisher	1	0.75-2.25
10-103-163	PowerPoint-Advanced	1	0.75-2.25
	Total	**9**	
	(Choose 6 of the 9 credits)		

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If you have finished the courses for this certificate, complete the certificate form to receive an official certificate from the Business Technology Department:
http://matcmadison.edu/bus_tech_certificate_ap

Madison Area Technical College

Certificates in Microsoft® Office

Program Number: 90-103-5

Basic Certificate in Microsoft® Office

10-103-123 Windows 7 1 credit
Introduces the Windows 7 operating system: work with common elements (windows, menus, toolbars, panes, dialog boxes and Help), use accessory programs, manage files/folders, customize using the Control Panel and maintain the computer.

10-103-133 Excel–Beginning 1 credit
Introduction to Excel spreadsheet software. Create, edit, save, format, print, perform calculations, copy/move text and formulas, create charts, create complex formulas and expand use of functions. Prerequisite: Competency in Windows.

10-103-135 Windows XP 1 credit
Introduces the Windows XP operating system: work with common elements (windows, menus, toolbars, panes, dialog boxes, and Help), use accessory programs, manage files/folders using My Computer and Explorer, customize using the Control Panel and maintain the computer.

10-103-137 Word–Beginning 1 credit
Introduction to Microsoft's word processing software. Create, edit, save, format and print basic documents; cut/copy/paste and find/replace text; apply font styles and effects; add bullets and numbering; work with tabs and indents; align text; apply borders and shading; use wizards and templates to produce documents; insert headers/footers; apply different formatting to document sections; create columns; insert Clip Art. Create and format tables, modify rows and columns, perform calculations, sort table data, customize tables. Prerequisite: Competency in Windows.

10-103-143 PowerPoint 1 credit
Introduction to PowerPoint presentation software. Create, edit, save, and print a presentation. Insert clip art, apply animation and slide transition effects, import text, customize background and bullets, create a table and a chart, create a WordArt object, and create a Webpage from a PowerPoint slide. Prerequisite: Competency in Windows AND experience using word processing software.

10-103-145 Access–Beginning 1 credit
Introduction to Access database software. Plan, create, edit, save, print and manage data; modify a database structure; relate tables; find, filter, query and sort data in tables; create forms and reports. Prerequisite: Competency in Windows.

10-103-165 Outlook 1 credit
Use Microsoft's messaging and personal information management program. Communicate by email; schedule appointments, meetings and events; manage the Inbox, contact lists, tasks and notes; track and archive messages; configure and customize Outlook; record journal entries; manage Outlook components; integrate Outlook with other Office programs. Prerequisite: Competency in Windows.

Advanced Certificate in Microsoft® Office

10-103-125 Access–Intermediate 1 credit
Share data among applications; create reports, forms and combo boxes; enhance forms with OLE fields, hyperlinks, and subforms; work with switchboards, PivotTables, and PivotCharts. Prerequisite: 10-103-145 or equivalent.

10-103-126 Word–Advanced 1 credit
Integrate Word with other Office programs; explore advanced graphics; construct, format and protect forms; work with charts and diagrams; develop documents in collaboration with others (add comments, track changes and compare and protect documents); apply advanced find/replace options; create macros; customize Word menus and toolbars. Prerequisite: 10-103-136 or equivalent.

10-103-127 Access–Advanced 1 credit
Apply advanced report and form techniques; use SQL and create multi-page forms; administer a database system; review database design principles. Prerequisite: 10-103-125 or equivalent.

10-103-132 Excel–Advanced 1 credit
Perform what-if analysis with Scenario Manager, data tables, Goal Seek and Solver; summarize data with PivotTables; exchange data with other programs including Access, Word and PowerPoint; audit and outline worksheets; program using Visual Basic for Applications. Prerequisite: 10-103-139 or equivalent.

10-103-136 Word–Intermediate 1 credit
Illustrate documents with graphics; create and format Webpages; add hyperlinks; merge Word documents; sort and filter records; work with Styles and Templates; use Outline view to develop multipage documents, adding footnotes/endnotes, a Table of Contents, cross-references, sections, and an Index. Prerequisite: 10-103-137 or equivalent.

10-103-139 Excel–Intermediate 1 credit
Work with financial functions, data tables, amortization schedules, hyperlinks, lists, templates, and multiple worksheets and workbooks. Prerequisite: 10-103-133 or equivalent.

10-103-140 Publisher 1 credit
An introduction to desktop publishing using Microsoft Publisher. Create, enhance and format publications; work with graphics objects; group and layer objects; insert tables; add special effects; use Publisher templates to design professional documents; draw and use shapes; produce multipage publications; and create an original Publisher publication. Prerequisite: Competency in Windows AND experience using word processing software.

10-103-153 PowerPoint-Advanced 1 credit
Create tables and charts; add action buttons and hyperlinks; insert movie and sound clips; modify graphics; add custom animation to graphics, charts and graphs; create self-running presentations; narrate a presentation. Use your creative side to make your own design template. Design a PowerPoint game. Prerequisite: 10-103-143 or equivalent.

Career Potential:

- **Administrative Assistant**
- **Word Processing Specialist**
- **Secretarial Assistant**
- **Administrative Services Coordinator**
- **Program Assistant**
- **Clerical Assistant**
- **Office Assistant**
- **Document Specialist**
- **Administrative Clerk**
- **Customer Service Representative**
- **Office Support Assistant**
- **Office Administrator**
- **PC Specialist**
- **Data Entry Operator**
- **Information Assistant**
- **Executive Assistant**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/10

Certificates in Microsoft® Office -Basic

Program Number: 90-103-1

Certificates

Business Technology Program Cluster

Center for Agriscience and Technologies

Certificate courses are offered at Madison; most courses are also offered at the Fort Atkinson, Reedsburg, Watertown and Portage campuses and online; some of them are also available in a bilingual format

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Certificates

Madison College has developed basic and advanced certificates in Microsoft® Office products that can help you get hired, get promoted, or update your skills. These computer skills are essential for work in today's modern offices. Both certificates are available either online or in the classroom.

Students who successfully complete this certificate typically earn $10.00 to $12.00 per hour based on their experience and other job skills.

Unique Requirements for Admission

This certificate does not require an application to the college. Students register for individual courses during the open registration period each semester. It is the student's responsibility to request the certificate from the Center for Agriscience and Technologies office (608-246-6800) once all required classes have been completed and grades have been received. A grade of C or better is required in each course to award the certificate.

Microsoft® is a registered trademark of the Microsoft Corporation.

Note: All Microsoft Office courses use the 2007 version.

Curriculum

	BASIC Certificate in Microsoft® Office	Credits	Hrs/week Lec-Lab
10-103-123	Windows 7 (Qtr 1) *OR*	1	0.75-2.25
10-103-135	Windows XP (Qtr 1) *OR*	(1)	(0.75-2.25)
10-103-124	Windows Vista (Qtr 1)	(1)	(0.75-2.25)
10-103-165	Outlook	1	0.75-2.25
10-103-137	Word–Beginning	1	0.75-2.25
10-103-133	Excel–Beginning	1	0.75-2.25
10-103-145	Access–Beginning	1	0.75-2.25
10-103-143	PowerPoint	1	0.75-2.25
	Total	**6**	

ADVANCED Certificate in Microsoft® Office
(Choose six courses from those listed below.)

10-103-125	Access–Intermediate	1	0.75-2.25
10-103-126	Word–Advanced	1	0.75-2.25
10-103-127	Access–Advanced	1	0.75-2.25
10-103-132	Excel–Advanced	1	0.75-2.25
10-103-136	Word–Intermediate	1	0.75-2.25
10-103-139	Excel–Intermediate	1	0.75-2.25
10-103-140	Publisher	1	0.75-2.25
10-103-163	PowerPoint-Advanced	1	0.75-2.25
	Total	**9**	
	(Choose 6 of the 9 credits)		

Microsoft® is a registered trademark of the Microsoft Corporation.

If you have finished the courses for this certificate, complete the certificate form to receive an official certificate from the Business Technology Department:
http://matcmadison.edu/bus_tech_certificate_ap

Madison Area Technical College

Certificates in Microsoft® Office

Program Number: 90-103-1

Basic Certificate in Microsoft® Office

10-103-123 Windows 7 1 credit
Introduces the Windows 7 operating system: work with common elements (windows, menus, toolbars, panes, dialog boxes and Help), use accessory programs, manage files/folders, customize using the Control Panel and maintain the computer.

10-103-133 Excel–Beginning 1 credit
Introduction to Excel spreadsheet software. Create, edit, save, format, print, perform calculations, copy/move text and formulas, create charts, create complex formulas and expand use of functions. Prerequisite: Competency in Windows.

10-103-135 Windows XP 1 credit
Introduces the Windows XP operating system: work with common elements (windows, menus, toolbars, panes, dialog boxes, and Help), use accessory programs, manage files/folders using My Computer and Explorer, customize using the Control Panel and maintain the computer.

10-103-137 Word–Beginning 1 credit
Introduction to Microsoft's word processing software. Create, edit, save, format and print basic documents; cut/copy/paste and find/replace text; apply font styles and effects; add bullets and numbering; work with tabs and indents; align text; apply borders and shading; use wizards and templates to produce documents; insert headers/footers; apply different formatting to document sections; create columns; insert Clip Art. Create and format tables, modify rows and columns, perform calculations, sort table data, customize tables. Prerequisite: Competency in Windows.

10-103-143 PowerPoint 1 credit
Introduction to PowerPoint presentation software. Create, edit, save, and print a presentation. Insert clip art, apply animation and slide transition effects, import text, customize background and bullets, create a table and a chart, create a WordArt object, and create a Webpage from a PowerPoint slide. Prerequisite: Competency in Windows AND experience using word processing software.

10-103-145 Access–Beginning 1 credit
Introduction to Access database software. Plan, create, edit, save, print and manage data; modify a database structure; relate tables; find, filter, query and sort data in tables; create forms and reports. Prerequisite: Competency in Windows.

10-103-165 Outlook 1 credit
Use Microsoft's messaging and personal information management program. Communicate by email; schedule appointments, meetings and events; manage the Inbox, contact lists, tasks and notes; track and archive messages; configure and customize Outlook; record journal entries; manage Outlook components; integrate Outlook with other Office programs. Prerequisite: Competency in Windows.

Advanced Certificate in Microsoft® Office

10-103-125 Access–Intermediate 1 credit
Share data among applications; create reports, forms and combo boxes; enhance forms with OLE fields, hyperlinks, and subforms; work with switchboards, PivotTables, and PivotCharts. Prerequisite: 10-103-145 or equivalent.

10-103-126 Word–Advanced 1 credit
Integrate Word with other Office programs; explore advanced graphics; construct, format and protect forms; work with charts and diagrams; develop documents in collaboration with others (add comments, track changes and compare and protect documents); apply advanced find/replace options; create macros; customize Word menus and toolbars. Prerequisite: 10-103-136 or equivalent.

10-103-127 Access–Advanced 1 credit
Apply advanced report and form techniques; use SQL and create multi-page forms; administer a database system; review database design principles. Prerequisite: 10-103-125 or equivalent.

10-103-132 Excel–Advanced 1 credit
Perform what-if analysis with Scenario Manager, data tables, Goal Seek and Solver; summarize data with PivotTables; exchange data with other programs including Access, Word and PowerPoint; audit and outline worksheets; program using Visual Basic for Applications. Prerequisite: 10-103-139 or equivalent.

10-103-136 Word–Intermediate 1 credit
Illustrate documents with graphics; create and format Webpages; add hyperlinks; merge Word documents; sort and filter records; work with Styles and Templates; use Outline view to develop multipage documents, adding footnotes/endnotes, a Table of Contents, cross-references, sections, and an Index. Prerequisite: 10-103-137 or equivalent.

10-103-139 Excel–Intermediate 1 credit
Work with financial functions, data tables, amortization schedules, hyperlinks, lists, templates, and multiple worksheets and workbooks. Prerequisite: 10-103-133 or equivalent.

10-103-140 Publisher 1 credit
An introduction to desktop publishing using Microsoft Publisher. Create, enhance and format publications; work with graphics objects; group and layer objects; insert tables; add special effects; use Publisher templates to design professional documents; draw and use shapes; produce multipage publications; and create an original Publisher publication. Prerequisite: Competency in Windows AND experience using word processing software.

10-103-153 PowerPoint-Advanced 1 credit
Create tables and charts; add action buttons and hyperlinks; insert movie and sound clips; modify graphics; add custom animation to graphics, charts and graphs; create self-running presentations; narrate a presentation. Use your creative side to make your own design template. Design a PowerPoint game. Prerequisite: 10-103-143 or equivalent.

Career Potential:

- **Administrative Assistant**
- **Word Processing Specialist**
- **Secretarial Assistant**
- **Administrative Services Coordinator**
- **Program Assistant**
- **Clerical Assistant**
- **Office Assistant**
- **Document Specialist**
- **Administrative Clerk**
- **Customer Service Representative**
- **Office Support Assistant**
- **Office Administrator**
- **PC Specialist**
- **Data Entry Operator**
- **Information Assistant**
- **Executive Assistant**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Essential Office Skills Certificate

Program Number: 90-106-2

Certificate

Business Technology Program Cluster

Center for Agriscience and Technologies

Certificate courses are offered at Madison; most courses are also offered at the Fort Atkinson, Reedsburg, Watertown and Portage campuses and online; some of them are also available in a bilingual format.

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Certificate

Clerical jobs are among the top five occupations for projected growth nationally. Madison College has developed this certificate to help you get hired, promoted or update your skills by providing essential office skills used in today's modern offices. Full- and part-time positions are available in small and large cities throughout Wisconsin and the United States. Typical working hours in this occupation are weekday business hours, generally from 8 a.m. to 5 p.m. with some variation.

The skills obtained in the Essential Office Skills Certificate may be applied to the Business Software Applications Specialist diploma program and the Administrative Assistant Associate Degree program. In addition, many of the certificate credits may be applied to programs.

This certificate is available to those working full time seeking skills to change careers. Current Madison College students may complete this certificate in conjunction with their existing course work. Courses are available totally online or in the classroom.

Students who successfully complete this certificate typically earn $8.00 to $10.00 per hour based on their experience and other job skills.

Unique Requirements for Admission

This certificate does not require an application to the college. Students register for individual courses during the open registration period each semester. It is the student's responsibility to request the certificate from the Center for Agriscience and Technologies office (608-246-6800) once all required classes have been completed and grades have been received. A grade of C or better is required in each course to award the certificate.

Curriculum

Courses		Credits	Hrs/week Lec-Lab
10-106-101	Intro to Keyboarding	1	0.75-2.25
10-103-123	Windows 7 (Qtr 1) *OR*	1	(0.75-2.25)
10-103-135	Windows XP (Qtr 1) *OR*	(1)	(0.75-2.25)
10-103-124	Windows Vista (Qtr 1)	(1)	(0.75-2.25)
10-103-137	Word–Beginning*	1	0.75-2.25
10-106-172	Administrative Office Management	2	2-0
10-103-133	Excel–Beginning*	1	0.75-2.25
10-106-139	Keyboard Skillbuilding	1	0.75-2.25
10-106-164	Customer Contact Skills	1	0.75-2.25
	Total	**8**	

*Prerequisite: Windows

Note: Courses are listed in suggested sequence.

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If you finished the courses for this certificate, complete the certificate form to receive an official certificate from the Business Technology Department: http://matcmadison.edu/bus_tech_certificate_ap

Courses

10-103-123 Windows 7 1 credit
Introduces the Windows 7 operating system: work with common elements (windows, menus, toolbars, panes, dialog boxes and Help), use accessory programs, manage files/folders, customize using the Control Panel and maintain the computer.

10-103-135 Windows XP 1 credit
Introduces the Windows XP operating system: work with common elements (windows, menus, toolbars, panes, dialog boxes and Help), use accessory programs, manage files/folders using My Computer and Explorer, customize using the Control Panel and maintain the computer.

10-106-101 Keyboarding Introduction 1 credit
Learn computer keyboarding (alphabetic and numeric keypad) using proper technique; develop speed and accuracy.

10-106-139 Keyboard Skillbuilding 1 credit
Identify keyboarding weaknesses through diagnostic tests and analyses. Refine keyboarding technique, increase speed and improve accuracy through individualized corrective practice. Prerequisite: 10-106-101 or touch keyboard experience.

10-106-164 Customer Contact Skills 1 credit
Examines what is the foundation of good customer service, identifies internal/external customers, examines questioning techniques, explores listening skills, examines customer surveys, discusses dealing with challenging customers, and examines the role of the customer service representative in today's business world.

10-106-172 Administrative Office Management 2 credits
Emphasizes technology and procedures for office management. Includes practical experience in information processing, telecommunications, written communications, records management, presentations, teamwork, ethics, stress and time management, customer service, travel arrangements and meeting planning.

10-103-137 Word–Beginning 1 credit
Introduction to Microsoft's word processing software. Create, edit, save, format and print basic documents; cut/copy/paste and find/replace text; apply font styles and effects; add bullets and numbering; work with tabs and indents; align text; apply borders and shading; use wizards and templates to produce documents; insert headers/footers; apply different formatting to document sections; create columns; and insert clip art. Create and format tables, modify rows and columns, perform calculations, sort table data, and customize tables. Prerequisite: competency in Windows 10-103-135 or 10-103-124.

10-103-133 Excel–Beginning 1 credit
Introduction to Excel spreadsheet software. Create, edit, save, format, print, perform calculations, copy/move text and formulas, create charts, create complex formulas and expand use of functions. Prerequisite: competency in Windows 10-103-135 or 10-103-124.

Career Potential:

- **Administrative Support**
- **Customer Service Associate**
- **Front-line Receptionist**
- **Office Assistant**
- **Receptionist**
- **Word Processor**

With advanced training graduates may find employment as:

- **Administrative Assistant**
- **Executive Assistant**
- **Executive Secretary**
- **Information Coordinator**
- **Office Manager**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Judicial Reporting

Program Number: 10-106-1

Associate in Applied Science Degree

Business Technology Program Cluster

Center for Agriscience & Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Program

Judicial reporters record the testimony, charges, opinions, sentences or other proceedings in a court of law, or the proceedings of business and professional conventions by computerized machine shorthand. This work affords interesting mental activity and requires concentration, patience, poise and good health. Promptness and attention to detail are essential traits. It is a profession offering personal satisfaction, mental stimulation and monetary rewards. The program is approved by the National Court Reporters Association (NCRA).

The national average length of time for completion of the program is 33 months, according to NCRA.

Recommendations for Admission

Keyboarding speed, 50 wpm; English composition, grade of C.

Unique Requirements for Graduation

Graduation from the program requires the following machine shorthand writing speeds: two-voice, 225 wpm; four-voice and jury charge, 200 wpm; literary, 180 wpm (five-minute takes with 95 percent accuracy—three in each category). The 50-hour requirement for internship will consist of a minimum of 40 hours of actual writing time under the supervision of a qualified reporter.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

			Hrs/week
FIRST YEAR			
First Semester		**Credits**	**Lec-Lab**
10-102-160	Business Law 1	3	3-0
10-106-143	Realtime Reporting 1*	5	1-8
10-801-195	Written Communication	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
10-804-123	Math with Business Applications	3	3-0
	Semester Total	**17**	
Second Semester			
10-106-144	Realtime Reporting 2*	5	1-8
10-106-108	Proofreading/Editing	3	3-0
10-106-158	Judicial Reporting Terminology*	2	2-0
10-801-196	Oral/Interpersonal Communication	3	3-0
10-809-197	Contemporary American Society	3	3-0
	Semester Total	**16**	
Summer Semester			
10-106-154	Realtime Reporting Workshop*	3	2-2
	Semester Total	**3**	
SECOND YEAR			
First Semester			
10-106-130	Judicial Reporting Procedures* **	3	3-0
10-106-145	Judicial Reporting 1*	3	1-4
10-106-147	Legal/Technical Reporting 1*	3	1-4
10-106-153	CAT Systems*	3	2.5-2.5
10-501-101	Medical Terminology	3	3-0
10-809-172	Race, Ethnic and Diversity Studies	3	3-0
	Semester Total	**18**	
Second Semester			
10-106-146	Judicial Reporting 2*, **	3	1-4
10-106-148	Legal/Technical Reporting 2*	3	5-0
10-106-151	Judicial Reporting Internship*, **	3	0-12
10-809-195	Economics	3	3-0
	Elective	1	E
	Semester Total	**13**	

*Courses offered only in semester shown.

**Judicial Reporting Procedures and Judicial Reporting Internship may be offered only every three years.

Note: Students are assessed for correct placement in English or mathematics courses based on their scores on the COMPASS test or on completion of the appropriate prerequisite(s). Additionally, there may be courses in other subject areas that may use COMPASS scores as prerequisites when reading, writing, math, or critical thinking competencies are required.

MADISON AREA | TECHNICAL COLLEGE

Real world smart.

Program Courses

10-102-160 Business Law 1 **3 credits**
Introductory survey course covering legal principles used in the business world. Emphasizes contracts, sales, bailments, agency, employment, property law, torts, criminal law, marital property and bankruptcy. Federal, state and case law serve as the basis of study.

10-106-108 Proofreading/Editing **3 credits**
Develop proofreading skills: punctuation, grammar, spelling and usage errors. Edit documents: appropriate content, conciseness, clarity, point of view.

10-106-130 Judicial Reporting Procedures **3 credits**
Presents professional court and conference shorthand reporting procedures. Includes transcript production; daily copy reporting; using general and legal reference materials; legal citations; professional standards and ethics; technology, such as videotaped depositions and computer-assisted transcription (CAT); reporting depositions, commission hearings and business meetings; operating a freelance reporting business; resume preparation. Prerequisite: 10-106-144.

10-106-143 Realtime Reporting 1 **5 credits**
Basic introduction to machine shorthand, covering theory, keyboard and phonetics necessary to write and read conflict-free computer shorthand. Emphasis on learning brief forms, phrases, and fluent readback of steno notes.

10-106-144 Realtime Reporting 2 **5 credits**
Continuation of machine shorthand covering theory, keyboard, and phonetics necessary to write and read conflict-free computer shorthand. Introduces speedbuilding while focusing on accuracy in writing, transcribing, and readback of shorthand notes. Includes vocabulary development. Outside-of-class machine practice is required. Prerequisite: Minimum grade of C in 10-106-143.

10-106-145 Judicial Reporting 1 **3 credits**
Continues building speed and vocabulary, using material from courtroom proceedings and depositions. Emphasis on writing two- and four-voice testimony. Speed attainment of 200 wpm is the goal. Instruction in current local, national and international events and geography. Prerequisite: 10-106-144.

10-106-146 Judicial Reporting 2 **3 credits**
Objective of the course is to write 225 wpm for five minutes on unfamiliar material with a minimum of 95 percent accuracy. Graduation from the program requires the following writing speeds: 2-voice, 225 wpm; 4-voice and jury charge, 200 wpm; literary, 180 wpm (three 5-minute takes with 95 percent accuracy). Instruction in current local, national and international events and geography. Prerequisite: 10106145 Judicial Reporting 1 and minimum writing speed of 130 wpm, with 95 percent accuracy in realtime.

10-106-147 Legal/Technical Reporting 1 **3 credits**
Specialized practice in writing and transcribing legal (jury charges, voir dire, expert witnesses and opening and closing statements) and technical (literary, congressional, scientific and medical) materials. Stresses fluent and accurate read backs. Prerequisite: Required entrance speed of 110 wpm on literary and jury charge material (five-minute takes with 95 percent accuracy).

10-106-148 Legal/Technical Reporting 2 **3 credits**
Develop advanced skills in writing and transcribing jury charge and literary materials. Continue medical dictation and transcription. Graduation writing speed requirements: Jury charge, 200 wpm; literary, 180 wpm (three 5-minute takes with 95 percent accuracy). Prerequisite: 10-106-147.

10-106-151 Judicial Reporting Internship **3 credits**
Advanced students take dictation in a court situation with the assistance and guidance of a qualified reporter who evaluates performance and work. Placement requires attainment of 200 wpm writing speed in 2-voice testimony material. Mock RPR and CRR tests are administered. At the 160 wpm testimony level, students acquire 40 hours of writing time, along with two pages of transcription per hour of writing. Note: Placement requires a machine shorthand speed attainment of 180 wpm. The 40-hour internship will consist of a minimum of 40 hours of actual writing time under the supervision of a qualified reporter.

10-106-153 CAT (Computer-Assisted Transcription) Systems **3 credits**
Advanced course using Case CATalyst software to translate, edit and print transcripts. Students compile individual personal dictionaries for use upon graduation from the program. Lecture/discussion groups center around such topics as CAT management, realtime translation and reporter technology.

10-106-154 Realtime Reporting Workshop **3 credits**
Required during the summer prior to entering the third semester of the program. Brief forms and phrases are reviewed. Vocabulary development and speed building are emphasized. Live dictation daily for speed building and testing. Prerequisite: 10106144 Court Reporting 2 and minimum writing speed of 80 wpm with 95 percent accuracy in realtime. Required during the summer prior to entering the third semester of the program.

10-106-158 Judicial Reporting Terminology **2 credits**
Covers the basic legal and Latin vocabulary necessary for successful transcription or captioning in the following subject areas: general legal terms, civil actions, criminal law, probate, real property, domestic relations, agency relationships, and bankruptcy. The correct spelling, pronunciation and definition of the terms are studied in addition to transcribing the terms from electronic stenowriter notes. Prerequisite: 10-106-143 or Realtime Reporting 1A and 1B.

10-501-101 Medical Terminology **3 credits**
Focuses on the component parts of medical terms: prefixes, suffixes and word roots. Students practice formation, analysis and reconstruction of terms. Emphasis is on spelling, definitions and pronunciation. Introduction to operative, diagnostic, therapeutic and symptomatic terminology of all body systems, as well as systemic and surgical terminology, is included.

Recommended Electives

10-106-155 Judicial Reporting Skillbuilding–Advanced **1 credit**
One-credit elective course for students who have not completed NCRA graduation speed requirements. Consists entirely of live dictation at 200 wpm 4-voice testimony takes, 200-225 wpm 2-voice testimony takes, 180 wpm literary takes and 200 wpm jury charge takes. Practice from Stenograph and Merit testing programs.

Career Potential:

- **CART Reporter**
- **Court and Conference Reporter**
- **Court Reporter**
- **Freelance Court Reporter**
- **Reporter**
- **Scopist**
- **Court Stenographer**
- **Realtime Reporter**

With additional education and/or work experience, graduates may find employment as:

- **Stenocaptionist**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Medical Administrative Specialist

Program Number: 10-106-4

Associate in Applied Science Degree

Business Technology Program Cluster

Center for Agriscience & Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Program

The Medical Administrative Specialist Program prepares students for work in the office of a doctor, clinic, hospital, or for employment wherever knowledge of medical terminology, professional procedures and ethics is required. It also provides excellent preparation for administrative positions in any business. The status of Certified Medical Assistant–Administrative can be acquired upon completion of the required job experience and written examinations.

Graduates of this program typically earn from $30,000 to $34,000 per year.

Recommendations for Admission

Keyboarding speed of 45 wpm and high school English composition with a grade of C or higher. Successful students have a mastery of English fundamentals—grammar, punctuation, and spelling. They should enjoy working with computers and be detail-oriented. Students should have access to a computer with an Internet connection for homework assignments.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

			Hrs/week
FIRST YEAR			
First Semester		**Credits**	**Lec-Lab**
10-103-123	Windows 7 (Qtr. 1) **OR**	1	0.75 – 2.25
10-103-135	Windows XP (Qtr. 1) **OR**	(1)	(0.75-2.25)
10-103-124	Windows Vista	(1)	(0.75-2.25)
10-103-136	Word–Intermediate (Qtr. 2)	1	0.75-2.25
10-103-137	Word–Beginning (Qtr. 1)	1	0.75-2.25
10-103-143	PowerPoint (Qtr. 2)	1	0.75-2.25
10-106-139	Keyboard Skillbuilding (Qtr. 2)	1	0-2
10-106-166	Medical Transcription Techniques and Procedures*	3	3-0
10-106-170	Medical Transcription 1*	2	1.5-1.5
10-106-178	Medical Language for Business Professionals 1*	2	2-0
10-801-195	Written Communication	3	3-0
	Semester Total	**15**	
Second Semester			
10-103-133	Excel–Beginning (Qtr. 3)	1	0.75-2.25
10-103-139	Excel–Intermediate (Qtr. 4)	1	0.75-2.25
10-106-171	Medical Transcription 2*	2	1.5-1.5
10-106-179	Medical Language for Business Professionals 2*	2	2-0
10-501-153	Body Structure	3	3-0
10-801-196	Oral/Interpersonal Communication	3	3-0
10-809-197	Contemporary American Society	3	3-0
	Semester Total	**15**	
SECOND YEAR			
First Semester			
10-103-145	Access–Beginning (Qtr. 3 or 4)	1	0.75-2.25
10-103-165	Outlook	1	0.75-2.25
10-106-103	Records Management	2	3-0
10-106-108	Proofreading and Editing	3	3-0
10-804-123	Math with Business Applications	3	3-0
10-809-195	Economics	3	3-0
	Elective	3	E
	Semester Total	**16**	
Second Semester			
10-101-108	Applied Accounting 1	3	3-0
10-106-165	Medical Office Procedures	3	3-0
10-106-186	Project Management & Coordination	2	2-0
10-106-190	Professional Development (Qtr. 3)	1	1-0
10-106-194	Career Management (Qtr. 4)	1	1-0
10-106-195	Internship	1	0-4
10-809-172	Race, Ethnic and Diversity Studies	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Semester Total	**17**	

* Course offered only in semester shown.

Note: Students are assessed for correct placement in English or mathematics courses based on their scores on the COMPASS test or on completion of the appropriate prerequisite(s). Additionally, there may be courses in other subject areas that may use COMPASS scores as prerequisites when reading, writing, math, or critical thinking competencies are required.

Program Courses

10-103-165 Outlook 1 credit
Use Microsoft's messaging and personal information management program. Communicate by email; schedule appointments, meetings and events; manage the Inbox, contact lists, tasks and notes; track and archive messages; configure and customize Outlook; record journal entries; manage Outlook components; integrate Outlook with other Office programs. Prerequisite: Competency in Windows or Windows XP 10-103-134 or 10-103-135.

10-106-103 Records Management 2 credits
Fundamentals of managing the record life cycle; alphabetic, numeric, subject, and geographic filing; supplies and equipment; charge-out procedures; retention schedules; transfer methods; control measurements; and imaging systems. Follows recommendations of the Association of Records Managers and Administrators.

10-106-108 Proofreading and Editing 3 credits
Develop proofreading skills: punctuation, grammar, spelling and usage errors. Edit documents: appropriate content, conciseness, clarity, point of view.

10-106-139 Keyboard Skillbuilding 1 credit
Identify keyboarding weaknesses through diagnostic tests and analyses. Refine keyboarding technique, increase speed, and improve accuracy through individualized corrective practice. Prerequisite: 10-106-101 or touch keyboarding experience.

10-106-165 Medical Office Procedures 3 credits
Emphasizes medical office procedures: communications, reception, appointment scheduling, record keeping, records management, telephone procedures, entering daily transactions, billing and collecting, banking procedures, preparing payroll, handling routine business correspondence, keeping an inventory of supplies and an introduction to features in an electronic office situation. Corerequisites/Prerequisites: 10-103-137 and 10-106-178.

10-106-166 Medical Transcription Techniques and Procedures 3 credits
Emphasizes the skilled proofreading, editing (including detailed coverage of grammar and punctuation), formatting and reference use techniques needed to produce high quality reports demanded by medical facilities.

10-106-170 Medical Transcription 1 2 credits
Introduces transcription of medical dictation; reinforces medical terminology and formats for a variety of medical reports. Continued development of keyboarding speed and accuracy skills. Prerequisites: keyboarding skill, concurrent enrollment in or completion of 10-106-166 and 10-106-178.

10-106-171 Medical Transcription 2 2 credits
Emphasizes transcription of more complex medical dictation, disease processes and medical specialties at higher levels of production and accuracy. Prerequisites: 10-106-166 and 10-106-170. Corequisite: 10-106-179.

10-106-178 Medical Language for the Business Professional 1 2 credits
This course is designed to give the beginning business student an insight into medical language. Students will explore how medical terms are formed, become familiar with the meaning of many word roots, prefixes, and suffixes, and spell, define, and pronounce many medical terms by understanding word components. Students will also exhibit mastery in the use of medical dictionaries and reference materials. Fundamentals will be discussed as they relate to evaluation of health practices by body system and by the body as a whole.

10-106-179 Medical Language for the Business Professional 2 2 credits
Continuation of Medical Language for the Business Professional 1, 10-106-178 covering the other half of the body. Prerequisite: 10-106-178.

10-106-186 Project Management and Coordination 2 credits
Plan and coordinate projects, develop timelines, determine priorities, increase individual and team productivity, control the workday and allocate resources using graphic tools such as MS Project software and GANTT charts. Project management and coordination techniques and concepts are learned by examining case studies and completing a project. Prerequisite: Must be taken in last year of program.

10-106-190 Professional Development 1 credit
Research the job market, develop a job search/career portfolio, explore networking, prepare for employment tests and practice for job interviews. The portfolio includes a resume, cover letter, thank you letter, reference sheet, job application form, and work samples.

10-106-194 Career Management 1 credit
Identification of factors associated with job success: professional image, conflict resolution, business and dining etiquette, sexual harassment, ethics, career goals, and performance appraisal. Explore personality types via the Internet. Should be taken in last semester of program.

10-106-195 Internship 1 credit
Students complete a 72-hour internship in an office setting supervised by a cooperating employer. The office setting is a business, medical, or legal office depending on the student's program. Must be taken in last year of program.

10-501-153 Body Structure 3 credits
A concise introduction to human body structure and function. Normal and abnormal states of the body and basic disease processes affecting the body are emphasized. Common problems encountered in a variety of health care settings are presented.

Recommended Electives

10-102-160	Business Law 1	3 credits
10-103-126	Word-Advanced	1 credit
10-103-132	Excel-Advanced	1 credit
10-103-140	Publisher	1 credit
10-103-153	PowerPoint-Advanced	1 credit
10-106-106	Business Writing and Research	2 credits
10-106-173	Medical Transcription Virtual Practicum	2 credits
10-106-187	Exploring Business Technologies (if seats are available at open registration) Advanced Software Classes	2 credits

Career Potential:

- **Medical Administrative Assistant**
- **Medical Receptionist**
- **Medical Records Clerk**
- **Medical Secretary**
- **Medical Transcriptionist**
- **Insurance Claims Processor**
- **Program Assistant**
- **Word Processing Operator**
- **Admittance Clerk**
- **Department/Clinic Assistant**
- **General Office Clerk**
- **General Office Receptionist**

With additional education and/or work experience, graduates may find employment as:

- **Chart Analyst**
- **Health Record Technologist**
- **Patient Information Specialist**
- **Health Unit Coordinator**
- **Medical Coding Specialist**
- **Medical Office Manager**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Medical Transcriptionist

Program Number: 31-106-7

One-Year Technical Diploma

Business Technology Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Program

Successful completion of this program qualifies the student for entry-level employment as a medical transcriptionist wherever transcription of medical material is required: hospitals, clinics, doctors' offices, nursing homes, specialty laboratories, transcription services and insurance companies. A medical transcriptionist must possess a thorough knowledge of medical terminology, anatomy, pathology and pharmacology. The status of registered medical transcriptionist (RMT) can be acquired upon completion of the program and written examination.

Graduates of this program typically earn from $32,800 to $35,700 per year.

All credits for the Medical Transcriptionist Program may be applied to the Medical Administrative Specialist Associate Degree Program. In addition, many credits may be applied to the Administrative Assistant Associate Degree Program.

Recommendations for Admission

Keyboarding speed of 45 wpm and high school English composition with a grade of C or higher. Successful students have a mastery of English fundamentals—grammar, punctuation, and spelling. They should enjoy working with computers and be detail-oriented. Students should have access to a computer with an Internet connection for homework assignments.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-103-137	Word-Beginning (Qtr 1)	1	0.75-2.25
10-106-139	Keyboard Skillbuilding (Qtr 2)	1	0-2
10-106-108	Proofreading/Editing	3	3-0
10-106-166	Medical Transcription Techniques and Procedures*	3	3-0
10-106-170	Medical Transcription 1*	2	1.5-1.5
10-106-178	Medical Language for Business Professionals 1*	2	2-0
10-801-195	Written Communication	3	3-0
	Semester Total	**15**	
Second Semester			
10-106-165	Medical Office Procedures	3	3-0
10-106-171	Medical Transcription 2**	2	1.5-1.5
10-106-173	Medical Transcription Virtual Practicum** (Qtr 4)	2	0-2
10-106-190	Professional Development (Qtr. 3)	1	1-0
10-501-153	Body Structure	3	3-0
10-106-179	Medical Language for Business Professionals 2**	2	2-0
10-530-182	Human Diseases for the Health Professions	3	3-0
	Semester Total	**16**	

* Offered fall semester only
** Offered spring semester only

Note: Students are assessed for correct placement in English or mathematics courses based on their scores on the COMPASS test or on completion of the appropriate prerequisite(s). Additionally, there may be courses in other subject areas that may use COMPASS scores as prerequisites when reading, writing, math, or critical thinking competencies are required.

Program Courses

10-106-108 Proofreading and Editing 3 credits
Develop proofreading skills: punctuation, grammar, spelling and usage errors. Edit documents: appropriate content, conciseness, clarity, and point of view.

10-106-165 Medical Office Procedures 3 credits
Emphasizes medical office procedures: communication, reception, appointment scheduling, record keeping, records management, telephone procedures, entering daily transactions, billing and collecting, banking procedures, preparing payroll, handling routine business correspondence, keeping an inventory of supplies and an introduction to features in an electronic office situation. Prerequisites/Corequisites: 10-103-137 and 10-106-178.

10-106-166 Medical Transcription Techniques and Procedures 3 credits
Emphasizes the skilled proofreading, editing (including detailed coverage of grammar and punctuation), formatting and reference use techniques needed to produce high quality reports demanded by medical facilities.

10-106-170 Medical Transcription 1 2 credits
Introduces transcription of medical dictation; reinforces medical terminology and formats for a variety of medical reports. Continued development of keyboarding speed and accuracy skills. Prerequisites: keyboarding skill, concurrent enrollment in (or completion of) 10-106-166 and 10-106-178.

10-106-171 Medical Transcription 2 2 credits
Emphasizes transcription of more complex medical dictation, disease processes and medical specialties at higher levels of production and accuracy. Prerequisites: 10-106-166 and 10-106-170. Corequisite: 10-106-179.

10-106-173 Medical Transcription Virtual Practicum 2 credits
Provides hands-on experience and practice transcribing medical documents while simulating a telecommuting medical transcription employment environment. Emphasis is on increased productivity while maintaining high-quality documents. Students will transcribe an assortment of reports for a variety of medical specialties on a random basis. The student will continue to increase their knowledge of researching, editing, decision making, and communication while working in an online environment. Prerequisites: 10-106-166, 10-106-170 and 10-106-178. Corequisites: 10-106-108, 10-106-171, 10-106-179, 10-501-153 and 10-530-182.

10-106-178 Medical Language for the Business Professional 1 2 credits
Introduces medical terminology used in transcription and administrative assistant positions. Covers how medical terms are formed; the meaning of many word roots, prefixes and suffixes; spelling, definition, and pronunciation of word components; and how to use a medical dictionary. One half of the body is covered in this class.

10-106-179 Medical Language for the Business Professional 2 2 credits
Continuation of Medical Language for the Business Professional 1, 10-106-178 covering the other half of the body. Prerequisite: 10-106-178.

10-106-190 Professional Development 1 credit
Research the job market, develop a job search/career portfolio, explore networking, prepare for employment tests and practice for job interviews. The portfolio includes a resume, cover letter, thank you letter, reference sheet, job application form, and work samples.

10-501-153 Body Structure 3 credits
A concise introduction to human body structure and function. Normal and abnormal states of the body and basic disease processes affecting the body are emphasized. Common problems encountered in a variety of health care settings are presented.

10-530-182 Human Diseases for the Health Profession 3 credits
Focuses on the common diseases of each organ/body system as encountered in all types of health settings by health professionals. Emphasis is placed on understanding the etiology (cause), signs and symptoms, diagnostic tests, treatment (including pharmacologic) of each disease. Prerequisite: 10-106-178. Prerequisite or Corequisite: 10-106-179.

Career Potential:

- **Medical Transcriptionist**
- **Medical Language Specialist**
- **Speech Recognition Editor**
- **Word Processing Operator/Medical**
- **Clerical/Receptionist**
- **Appointment Scheduler**

With additional education and/or work experience, graduates may find employment as:

- **Department Secretary**
- **Medical Secretary**
- **Medical Administrative Assistant**
- **Health Unit Coordinator**
- **Medical Coding Specialist**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Effective: 2010-2011

Project Management Certificate

Program Number: 90-106-5

Certificate

Business Technology Program Cluster

Center for Agriscience and Technologies

Certificate courses offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Certificate

This certificate is designed to appeal to those individuals desiring professional development, career advancement, or knowledge in a field of Project Management.

Project Management is both a process and set of tools and techniques concerned with defining the project's goal, planning all the work to reach the goal, leading the project and support teams, monitoring progress, and seeing to it that the project is completed in a satisfactory way. In today's marketplace, Project Management is an integral part of all business practices.

The skills obtained in the Project Management Certificate may be applied to the Administrative Assistant Associate Degree program, Meeting and Event Management Associate Degree program, or other associate or diploma degree programs.

This certificate is available to those working full time seeking skills to change careers. Current Madison College students may complete this certificate in conjunction with their existing course work. Courses are available totally online or in the classroom.

Students who successfully complete this certificate typically earn from $13 to $16 per hour based on their experience and other job skills.

Unique Requirements for Admission

This certificate does not require an application to the college. Students register for individual courses during the open registration period each semester. It is the student's responsibility to request the certificate from the Center for Agriscience and Technologies office (608-246-6800) once all required classes have been completed and grades have been received. A grade of C or better is required in each course to award the certificate.

Curriculum

Courses		Credits	Hrs/week Lec-Lab
10-103-139	Excel–Intermediate**	1	0.75-2.25
10-103-186	MS Project*	2	1-2
10-106-164	Customer Contact Skills	1	0.75-2.25
10-106-186	Project Management and Coordination	2	2-0
Plus, choose one of the following courses:			
10-109-102	Fundamentals of Meeting Management	3	3-0
10-196-189	Team Building and Problem Solving	3	3-0
	Total	**9**	

* Prerequisite: Windows
** Prerequisite: Excel-Beginning

Courses are listed in suggested sequence.

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If you have finished the courses for this certificate, complete the certificate form to receive an official certificate from the Business Technology Department:
http://matcmadison.edu/bus_tech_certificate_ap

Courses

10-103-139 Excel–Intermediate 1 credit
Create complex formulas, expand use of functions, manage and link workbooks, create and use macros, use and analyze list data, enhance charts and workbooks. Working competency in Windows and Beginning Excel presumed.

10-103-186 MS Project 2 credits
Use project management software to plan a project, create a project schedule, communicate project information, assign resources and costs, and track the project's progress through completion.

10-106-164 Customer Contact Skills 1 credit
Examines what is the foundation of good customer service, identifies internal/external customers, examines questioning techniques, explores listening skills, and examines customer service representative in today's business world.

10-106-186 Project Management and Coordination 2 credits
Plan and coordinate projects, develop timelines, determine priorities, increase individual and team productivity, control the workday and allocate resources using graphic tools such as MS Project software and GANTT charts. Project management and coordination techniques and concepts are learned by examining case studies and completing a project.

10-109-102 Fundamentals of Meeting Management 3 credits
Students explore the core issues of meeting planning from the fundamentals to the new trends shaping the meetings industry. Development of meeting timelines, checklists and request for proposal are introduced. Further focus includes the process meeting planners must use in site selections, the value of meeting objectives and format, and attendee expectations.

10-196-189 Team Building and Problem Solving 3 credits
The learner applies the skills and tools necessary to facilitate problem solving in a team environment. Each learner will demonstrate the application of strategies regarding: the necessary roles for team effectiveness, stages of team development, team problem solving and consensus, systematic processes for problem definition, data acquisition and analysis, generating alternative solutions, choosing solutions, implementation planning and evaluation.

Career Potential:

- **Project Assistant**
- **Office Assistant**
- **Customer Service Representative**
- **Information Assistant**
- **Assistant Meeting Planner**

With advanced training students may find employment as:

- **Administrative Assistant**
- **Project Director**
- **Office Administrator**
- **Executive Assistant**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Effective: 2010-2011

Receptionist/Clerical and Office Assistant Certificate

Program Number: 90-106-3

Certificate

Business Technology Program Cluster

Center for Agriscience and Technologies

Certificate courses offered at Madison, Fort Atkinson, Portage, Reedsburg, and Watertown campuses, as well as completely online. This certificate is also offered entirely in a bilingual (English/Spanish) format.

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Certificate

Clerical jobs are among the top five occupations for projected growth nationally. Madison College has developed this certificate to prepare students with the entry level skills to perform office assistant and clerical support jobs. Students will enhance their proofreading and editing skills and learn to communicate more effectively. Students will also get the administrative, customer service, and management skills to be successful in a fast-paced business environment.

The skills obtained in the Receptionist/Clerical and Office Assistant Certificate may be applied to the Administrative Assistant Associate Degree program. In addition, many of the certificate credits may be applied to other programs.

This certificate is available to those working full time seeking skills to change careers. Current Madison College students may complete this certificate in conjunction with their existing course work. Courses are available totally online or in the classroom.

Unique Requirements for Admission

This certificate does not require an application to the college. Students register for individual courses during the open registration period each semester.

Intermediate to advanced computer skills (completion of MS Office Basic Certificate) is strongly recommended prior to taking this certificate.

Completion

It is the student's responsibility to request the certificate from the Center for Agriscience and Technologies office (608-246-6800) once all required classes have been completed and grades have been received. A grade of C or better is required in each course to award the certificate.

Curriculum

Courses		Credits	Hrs/week Lec-Lab
10-106-172	Administrative Office Management	2	2-0
10-106-164	Customer Contact Skills	1	0.75-2.25
10-106-190	Professional Development	1	0.75-2.25
10-106-103	Records Management	2	1-2
10-106-194	Career Management	1	0.75-2.25
	Total	**7**	

If you have finished the courses for this certificate, complete the certificate form to receive an official certificate from the Business Technology Department: http://matcmadison.edu/bus_tech_certificate_ap

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Courses

10-106-172 Administrative Office Management 2 credits
Emphasizes technology and procedures for office management. Includes practical experience in information processing, telecommunications, written communications, records management, presentations, teamwork, ethics, stress and time management, customer service, travel arrangements and meeting planning.

10-106-164 Customer Contact Skills 1 credit
Examines what is the foundation of good customer service, identifies internal/external customers, examines questioning techniques, explores listening skills, and examines customer service representative in today's business world.

10-106-190 Professional Development 1 credit
Using the internet and traditional methods, research the job market, develop a job search/career portfolio, explore networking. Create a professional image for job search. The portfolio includes a resume, cover letter, thank-you letter, reference sheet, work samples and other job search materials.

10-106-103 Records Management 2 credits
Fundamentals of managing the record life cycle; alphabetic, numeric, subject, geographic filing; electronic file management; supplies and equipment; charge-out procedures; retention schedules; transfer methods; control measurements; imaging systems and security of information. Follows recommendations of the Association of Records Managers and Administrators (ARMA).

10-106-194 Career Management 1 credit
Identification of factors associated with job success: conflict resolution, business and dining etiquette, sexual harassment, ethics, career goals, and performance appraisal. Explore personality types via the Internet. Prerequisite: Student should be in last semester of program.

Career Potential:

- **Administrative Support**
- **Office Assistant**
- **Customer Service Associate**
- **Information Assistant**
- **Word Processor**

With advanced training students may find employment as:

- **Administrative Assistant**
- **Executive Secretary**
- **Information Coordinator**
- **Executive Assistant**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Effective: 2010-2011

Website Development Certificate

Program Number: 90-152-2

Certificate

Business Technology Program Cluster

Center for Agriscience and Technologies

Certificate courses offered completely online

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Certificate

Students earning the Website Development Certificate obtain basic Website development skills in demand in today's digital world. They gain hands-on experience by completing course assignments and projects. Students and instructors use email and Web-based discussion to solve problems, provide clarification and maintain contact in general. These certificate classes are delivered as online only, with the exception of Dreamweaver, which is additionally offered in the classroom.

Unique Requirements for Admission

This certificate does not require an application to the college. Students register for individual courses during the open registration period each semester. Please note: it is the student's responsibility to request the certificate from the Center for Agriscience and Technologies office (608-246-6800) once all required classes have been completed and grades have been received. A grade of C or better is required in each course to award the certificate.

Career Potential:

- **Web Publisher**
- **Web Research Specialist**
- **Web Coordinator**

This certificate is for individuals who use the World Wide Web for business or personal use, particularly those that may be called upon to edit, create, or maintain Websites.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

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Curriculum

Courses		Credits	Hrs/week Lec-Lab
10-152-162	HTML–Beginning	1	0.75-2.25
10-152-163	HTML-Dynamic*	1	0.75-2.25
10-103-168	Dreamweaver	1	0.75-2.25
10-103-167	Fireworks	1	0.75-2.25
10-103-164	Flash	1	0.75-2.25
10-103-163	Adobe Photoshop	1	0.75-2.25
10-152-165	Javascript: An Introduction*	1	1-0
10-152-164	Website Design Concepts*	1	0.75-2.25
	Total	**8**	

*Prerequisites: HTML–Beginning is required before taking HTML-Dynamic, Javascript: An Introduction, and Website Design Concepts.

Note: Courses listed in suggested sequence

If you have finished the courses for this certificate, complete the certificate form to receive an official certificate from the Business Technology Department: http://matcmadison.edu/bus_tech_certificate_ap

Courses

10-103-163 Adobe Photoshop **1 credit**
Use this image-editing program to manipulate graphic images. Use palettes, tools, and a variety of techniques to modify images by rotating, resizing, changing color, and adding text. Prerequisite: Competency in Windows.

10-103-164 Flash-Beginning **1 credit**
Use Flash graphic software program to deliver animations, music tracks, sound effects and state-of-the-art interface design.

10-103-167 Fireworks-Beginning **1 credit**
Create, edit and optimize Web graphics using Fireworks software using a complete set of bitmap and vector tools.

10-103-168 Dreamweaver **1 credit**
Use the Dreamweaver Web-authoring software features to design, plan, and build a Website; work with text, images, links and tables.

10-152-162 HTML–Beginning **1 credit**
Create Webpages using HTML; control HTML text; add hyperlinks, graphics and multimedia; work with tables; use frames and forms; design Webpages. Prerequisite: Competency in Windows and Internet.

10-152-163 HTML-Dynamic **1 credit**
An introduction to JavaScripting for HTML. Work with Dynamic HTML (DHTML) and Cascading Style Sheets, control content dynamically, position elements with DHTML, implement advanced DHTML features and structure data with XML. Prerequisite: 10-152-162.

10-152-164 Website Design Concepts **1 credit**
Use Web-design tools and techniques to plan, create, test, publish, and maintain a Website. Use HTML, Dreamweaver, FrontPage, or other Web authoring software to develop a Website that is user friendly, well-designed, and effective. Prerequisite: competency in Windows and either HTML, Dreamweaver, FrontPage, or other Web authoring software.

10-152-165 Javascript: An Introduction **1 credit**
An introduction to programming and object-oriented design concepts using the Java programming language. Students learn all the Java programming basics and use a simple text editor as a development environment. Design concepts and programming tools will be integrated with an emphasis on practical business solutions. Prerequisite: 10-152-162.

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Madison Area Technical College

Effective: 2010-2011

Bioinformatics Certificate

Program Number: 90-152-4

Certificate

Information Technology Program Cluster

Center for Agriscience and Technologies

Courses offered at Madison Campuses

For information call: (608) 243-4307 or (800) 322-6282 Ext. 4307

About the Certificate

This certificate is designed for individuals with a college background in the life sciences to prepare them for careers in the emerging field of bioinformatics. Bioinformatics is the application of information technology to the management and analysis of biological data. Computational tools are used to store, retrieve, analyze or predict the composition or structure of biomolecules. Increasingly, the biotechnology workforce requires knowledge of bioinformatics, at least at the literacy level, in order to be able to communicate in the workplace. Beyond literacy, there are employment opportunities available for scientists and technicians with the following skills: database creation and management; writing small computer programs (scripts) to query databases; using computational analysis tools effectively and website design and maintenance to make information accessible. In the certificate program, students study the design and use of bioinformatics tools, Unix, the Perl programming language, Oracle relational database, and Internet technology.

Unique Requirements for Admission

The student is expected to have an AAS degree in the Biotechnology Lab Technician Program or a four-year degree in a life science discipline or equivalent experience in the biotechnology industry. The student is also expected to have basic experience in operating a personal computer.

Apply directly to the Center. The completed application form should include verification of years of employment, if necessary. No application fee is required for this certificate. Students are responsible for contacting the Center upon completion of the required classes. Certificate will be awarded after completion of all requirements is verified.

Curriculum

		Credits	Hrs/week Lec-Lab
FIRST YEAR			
First Semester			
10-007-180	Introduction to Bioinformatics	3	2-2
10-152-111	Introduction to Java Programming	3	2-2
	Semester Total	**6**	
Second Semester			
10-152-120	Web Site Development-XHTML	3	2-2
10-152-125	Relational Database Coding-Oracle SQL	3	2-2
10-152-151	Scripting with Perl	3	2-2
	Semester Total	**9**	
SECOND YEAR			
First Semester			
10-007-181	Advanced Bioinformatics	3	2-2
10-154-190	Linux Server	3	3-0
	Semester Total	**6**	

Note: All Information Technology courses require a grade of C or better in order to receive the certificate.

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Bioinformatics Certificate

Program Number: 90-152-4

Courses

10-007-180 Introduction to Bioinformatics 3 credits
This survey course is an introduction to the concepts and tools used in bioinformatics. The fundamentals of sequence alignment, data mining and microarray data analysis will be discussed. This course will also provide the student with an overview of the computing tools used for bioinformatics, such as Unix, Perl, and file structure and management. Mastery of these tools is not expected in this course; rather, the student is given a practical introduction to the Perl Programming language in the Unix operating system environment. Prerequisite: Acceptance into certificate.

10-007-181 Advanced Bioinformatics 3 credits
This capstone course in Bioinformatics provides the student with experience in the design and implementation of basic programming concepts applied to bioinformatics problems. Using the skills gained in previous certificate courses, the student designs and completes an independent project using the Perl programming language, Oracle database, and internet technology in the UNIX operating system. Prerequisites: grade of C or better in all certificate courses and concurrent enrollment in 10-007-180, 10-152-120, 10-152-125 and 10-152-151.

10-152-111 Introduction to Java Programming 3 credits
Introduces programming and object-oriented design concepts using the Java programming language. Students learn all the Java programming basics and use a simple text editor as a development environment. Design concepts and programming tools will be integrated with an emphasis on practical business solutions. Prerequisite: Acceptance into certificate.

10-152-120 Website Development-XHTML 3 credits
Teaches the fundamentals and techniques of developing business websites using XHTML-compliant HTML. Topics include webpage design, tables, image manipulation, image maps, forms, tags, cascading style sheets (CSS) and an introduction to JavaScript. All work is done directly with XHTML. Prerequisite: Working knowledge of Microsoft Windows (computer Literacy, proficiency with a mouse, file management).

10-152-125 Relational Database Coding – Oracle/SQL 3 credits
Presents relational database concepts and teaches beginning to intermediate Structured Query Language (SQL) using an Oracle database. Students learn to create and maintain database objects and to store, retrieve, and manipulate data. Demonstrations and hands-on practice reinforce the fundamental concepts. Prerequisite: 10-007-180.

10-152-151 Scripting with Perl 3 credits
This course provides the student with experience with the Perl programming language. The course covers concepts such as repetitive tasks, file maintenance, log file analysis or Bioinformatics, database access, and module usage. A simple text editor will be used for creating scripts and the Perl interpreter will be used to run the scripts. Prerequisite: grade of C or better in 10-007-180.

10-154-190 Linux Server 3 credits
Introduces Linux with a focus on system administration skills. Topics include installation, file and directory management, command execution, input/output redirection and pipes, shell scripts, network services, security, troubleshooting and the X Window system. Prerequisite: 10-007-180.

Career Potential:

- **Bioformatics Specialist**
- **Bioinformatics Technician**

More detailed and updated information on this program may be available a: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Internet Developer Certificate – IDC

Program Number: 90-152-11

Certificate

Information Technologies Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800
(800) 322-6282 ext. 6800

About the Program

The Internet Developer Certificate is a sequence of connected courses exploring Internet software development, including Javascript, PHP/MySQL, Java, Ajax, Drupal, and Flash development. This certificate is open to graduates of a computing program or anyone with equivalent field experience.

These are three-credit courses, meeting two hours in the classroom and two hours in the lab each week for 17 weeks. All sections are in the late afternoon and evening. Class work stresses hands-on programming through projects, and students are welcome to work on assignments at home or at work if they have the tools, which are mostly free (the Java Development Kit or PHP, for example).

Completing the certificate takes two years taking one course per semester. The express track allows completion in one year taking two courses per semester.

This certificate is offered through the Agriscience and Technologies Center. To apply for the Internet Developer Certificate, download this application form in Microsoft Word format, fill out, and attach to Mike Bertrand. All applicants will be contacted by eMail shortly after submitting an application.

Although four courses must be taken to obtain the certificate, qualified "special students" are welcome to take individual classes, room permitting (a certain number of seats are reserved for certificate students). Applications are being accepted on a rolling basis.

Curriculum

Courses		Credits	Hrs/week Lec-Lab
10-152-187	Drupal Development - IDC	3	2-2
10-152-188	Intro to Internet Programming - IDC	3	2-2
10-152-189	Google Tools – IDC	3	2-2
10-152-190	Java Programming - IDC	3	2-2
10-152-192	Ajax, XSLT, and JQuery - IDC	3	2-2
10-152-196	PHP and MySQL Programming - IDC	3	2-2
10-152-198	Java EE W/Spring and Hibernate - IDC	3	2-2
10-152-199	Flash Programming - IDC	3	2-2
	Total	**12**	

Obtaining the certificate requires taking four courses. Intro to Internet Programming is required and should be taken first.

Unique Requirements for Admission

The certificate is open to graduates of a computing program or anyone with equivalent field experience.

Pre-Admission Skills

Certificate students are expected to have some experience in software development.

Courses

10-152-187 Drupal Development – IDC 3 credits
This course takes up all aspects of Drupal Open Source development, starting with installation, configuration, and base features. Core functions and modules are addressed, including users, content types, themes, menus, and jQuery. Module development with PHP is the central topic of this class, including with the form API against MySQL. Students should be familiar with HTML and CSS and be ready to program in PHP. This course is an elective for the Internet Developer Certificate.

10-152-188 Intro to Internet Programming – IDC 3 credits
Introduction to HTML programming and client-side scripting. HTML topics include basic webpage layout and design, graphics, tables, forms, style sheets and the Document Object Model/DHTML. JavaScript programming is covered intensively, including scripting basics, dynamic HTML production, arrays and validating user input. After these foundations, students study Cascading Style Sheets (CSS), XML, Ajax, and ASP. This course is required for the Internet Developer Certificate and should be taken first.

10-152-189 Google Tools – IDC 3 credits
This course introduces Google Tools for the Internet developer, including Google Search, Google Docs, Google SVG Web, and Google Closure Templates. The Google Ajax APIs are considered, including against Google Maps. An additional topic is the Google Web Toolkit, which uses Java to develop rich Ajax applications. Google Android for smart phones is taken up as well, though it is not necessary to have an Android phone for the course. Basic familiarity with Java and Javascript, the languages used by these tools, is assumed. This course is an elective for the Internet Developer Certificate.

10-152-190 Java Programming – IDC 3 credits
Introduction to the Java programming language from an object-oriented point of view. Students start with Java basics: data types, class construction, control structures, method writing and elementary event handling. Further topics include Java components and layout, mouse handling, graphics, string manipulation, remote data access, file I/O, network programming and database work. Java 2 and Swing are covered extensively. Students write device independent applications as well as Internet applets. This course is an elective for the Internet Developer Certificate.

10-152-192 Ajax, XSLT, and JQuery – IDC 3 credits
This course takes up programming web pages with Javascript, including through the XML DOM API and jQuery. Ajax is a special focus, including against MySQL and server-side PHP scripts. The central role of CSS is emphasized throughout. Additional topics include Web Services, XSLT, RSS, and Google maps. This course is an elective for the Internet Developer Certificate.

10-152-192 Ajax, XSLT, and JQuery – IDC 3 credits
This course takes up programming web pages with Javascript, including through the XML DOM API and jQuery. Ajax is a special focus, including against MySQL and server-side PHP scripts. The central role of CSS is emphasized throughout. Additional topics include Web Services, XSLT, RSS, and Google maps. This course is an elective for the Internet Developer Certificate.

10-152-196 PHP and MySQL Programming – IDC 3 credits
Introduction to PHP and MySQL. PHP is an open source C-like language for server-side web page programming, and MySQL is a full-featured open source database. We develop the basics of PHP programming, including variables, control, functions, arrays, classes and file I/O. Students develop a robust shopping cart application for an online bookstore, including initial database construction using web services, a web search engine, user authentication, payment handling through Paypal's sandbox and transaction storage. This course is an elective for the Internet Developer Certificate.

10-152-198 Java EE w/Spring and Hibernate – IDC 3 credits
This course takes up the Java Enterprise Edition (Java EE) in a professional setting, the premiere environment for writing Java web applications. Each student will install a Java EE development environment with free (or cheap) industry-standard tools, including Tomcat, MyEclipse, and MySQL. Basic topics include Java Server Pages (JSP), servlets, and JSTL. We introduce database access through JDBC, but emphasize Hibernate as an object oriented approach to database access in Java and take up the Spring Framework as an effective approach to Java web programming. Students must be conversant with basic Java. This course is an elective for the Internet Developer Certificate.

10-152-199 Flash Programming – IDC 3 credits
This course introduces ActionScript 3.0 programming in Adobe Flash and Flex. After a brief introduction to the drawing tools, we take up writing event handlers and drawing with ActionScript. All major programming constructs are considered, including variables, loops, functions, object-oriented concepts, and file I/O (including XML). Programmatic Flash animation is a continuing thread. Additional topics include Flash forms, games, and drag-and-drop techniques. This course is an elective for the Internet Developer Certificate.

Career Potential:

- **Internet Developer**
- **Client Server Developer**
- **Web Developer**
- **Web Programmer**
- **Application Developer**
- **HTML Developer**
- **Flash Developer**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Information Technology — CISCO Certified Networking Associate (CCNA)

Effective: 2010-2011

Program Number: 90-150-2

Certificate

Information Technology Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Certificate

This certificate is designed to prepare information systems professionals for the field of network management. Design, configuration, maintenance and trouble shooting of both local area networks (LANs) and Wide Area Networks (WANs) are becoming increasingly important as the number of networking devices continues to grow. Students enrolling in the CCNA certificate will be able to meet these needs, thereby taking advantage of this growing segment of the economy. Two courses are used to teach students the necessary skills to make them successful in the field of data networking. Please note: completion of the CCNA certificate courses prepares students to test for the CCNA certification.

Pre-Admission Skills

High school diploma, HSED or GED with a minimum grade point average of 2.0, or equivalent, and general knowledge of Microsoft Windows. No Application is required.

Unique Requirements for Completion

The certificate will be awarded upon completion of the requirements with a minimum of a 2.0 grade average and no course grade lower than a C. Students are responsible for contacting the Center upon completion of the required classes. Certificate will be awarded after completion of all requirements is verified.

Career Potential:

- **Cisco Certified Networking Associate (CCNA)**

Curriculum

Courses		Credits	Hrs/week Lec-Lab
10-150-170	CCNA1&2: Networking Routing Basics	5	3-4
10-150-172	CCNA3&4: Switching and WAN Access	3	2-2
	Total	**8**	

Note: All Information Technology courses require a grade of C or better in order to receive the certificate.

Courses

10-150-170 CCNA1&2: Networking Routing Basics 5 credits
Introduction to Networking basics and routing with a focus on network terminology, protocols, local area networks (LANs), Open System Interconnection (OSI) model, cabling, routers and router programming, Ethernet, Internet Protocol (IP) addressing, subnetting, Variable Length Subnet Masking (VLSM), Classless Inter-Domain Routing (CIDR) and network standards. The student will develop skills on configuring a router, using the Cisco IOS Software, and configuring routing using static routes and routing protocols, including RIP version 1 & 2, EIGRP, and single area OSPF. Involves extensive lab work using router, switches, and simulations. NOTE: Must take 10-150-172 CCNA3&4 within one year of completion of 10-150-170 CCNA1&2.

10-150-172 CCNA3&4: Switching & WAN Access 3 credits
A continuation of CCNA1&2, this course focuses on switching concepts and WAN access. Topics include Virtual LANs (VLANs), switch configuration, LAN and WAN network design, Rapid Spanning Tree Protocol, trunking, VLAN Trunking Protocol (VTP), access lists, Network Address Translation (NAT), DHCP, wide area networks (WANs), WAN connections (cable, DSL, Frame Relay, and leased lines), Quality of Service (QoS), VPN basics, and network monitoring. Prerequisite: 10-150-170 (must follow 10-150-170 CCNA1&2 within one year).

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Information Technology

Effective: 2010-2011

CompTIA A+ Computer Essentials Certificate

Program Number: 90-154-2

Certificate

Information Technology Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Certificate

IT-CompTIA A+ Computer Essentials Certificate provides instruction for information systems professionals and programming students for the area of computer hardware and software. Topics covered include installation, maintenance and trouble shooting of personal computer hardware, operating systems, and software.

Please note: completion of the IT-CompTIA A+ Computer Essentials Certificate (two) courses prepares the student to test for the CompTIA A+ certification.

Pre-Admission Skills

1. High school diploma, HSED or GED with a minimum grade point average of 2.0 or equivalent
2. General knowledge of Microsoft Windows. No application is required

Unique Requirements for Completion

The certificate will be awarded upon completion of the requirements with a minimum of a 2.0 grade average and no course grade lower than a C. Students are responsible for contacting the Center upon completion of the required classes. Certificate will be awarded after completion of all requirements is verified.

Curriculum

Courses		Credits	Hrs/week Lec-Lab
10-154-189	Computer Hardware Essentials	3	2-2
10-154-191	A+ IT Technician	3	2-2
	Total	**6**	

Note: All Information Technology courses require a grade of C or better in order to receive the certificate.

Courses

10-154-189 Computer Hardware Essentials **3 credits**

This course presents a comprehensive overview of computer fundamentals and an introduction to operating systems. Students completing through hands-on activities and labs, this course will be able to work with internal components of a computer, assemble a computer system, work with the basics of an operating system and get exposure to computer tasks such as installation, configuration, diagnosing, preventive maintenance and basic networking and operating systems. CompTIA's A+ Certification is a widely accepted IT industry standard certification for PC technology. This course prepares students for CompTIA's A+ Essentials exam (CompTIA A+ exam 220-701).

10-154-191 A+ IT Technician **3 credits**

This course presents an advanced exposure to computer operating systems and hardware. Students learn the functionality of operating systems and hardware components as well as suggested best practices in support roles. Through hands-on activities and labs, students learn how to configure a computer, install operating systems and computer software, and troubleshoot hardware problems. This course prepares students for CompTIA's A+ Practical Application exam (CompTIA 220-702) Prerequisite: 10-154-189 Computer Hardware Essentials.

Career Potential:

- **CompTIA A+ Certified**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Information Technology—

Computer Systems Administration Specialist

Effective: 2010-2011

Program Number: 10-154-7

Associate in Applied Science Degree

Information Technology Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Program

Earn a degree in Computer Systems Administration while gaining the skills necessary to obtain key industry certifications such as the CompTIA A+, Microsoft Certified Technology Specialist (MCTS) and Microsoft Certified Information Technology Professional (MCITP) with the Windows Server specialization. Challenge yourself to learn the technologies valued by area employers including Microsoft Windows system administration for both client and server systems. Learn the fundamentals of data networking, operating systems support and systems integration to prepare for your information technology career. A guided on-the-job internship with an area employer helps students find the jobs they desire.

Typical job duties include: install, configure, administer and operate client and server systems including Microsoft Windows server, Windows client, Linux and Microsoft Exchange. Perform technical troubleshooting of computer systems and networks. Integrate the hardware and software required to support new initiatives. Install, maintain and troubleshoot Internet connectivity for services such as email, web and other Internet applications. Be responsible for critical system backups and plan for the restoration of computing services in the event of disasters. Demonstrate initiative as a member of an information technology team.

Requirements for Admission

1) High school diploma, HSED or GED with a minimum grade point average of 2.0 or equivalent
2) General knowledge of Microsoft Windows

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			**Hrs/week**
First Semester		**Credits**	**Lec-Lab**
10-107-111	Careers in IT	1	1-0
10-150-101	Network Essentials	3	2-2
10-150-160	IT Security Awareness	1	1-0
10-154-184	Windows Client	3	2-2
10-154-189	Computer Hardware Essentials	3	2-2
10-801-195	Written Communication	3	3-0
10-809-197	Contemporary American Society	3	3-0
	Total	**17**	
Second Semester			
10-152-104	Windows PowerShell	3	2-2
10-154-186	Windows Network Infrastructure	3	2-2
10-154-191	A+ IT Technician	3	2-2
10-801-196	Oral/Interpersonal Communication	3	3-0
10-804-144	Math of Finance	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Total	**18**	
SECOND YEAR			
First Semester			
10-107-175	Job Search Preparation	1	1-0
10-150-162	Computer Systems Security*	3	2-2
10-154-188	Windows Active Directory*	3	2-2
10-154-190	Linux Server	3	2-2
10-809-166	Introduction to Ethics: Theory and Application	3	3-0
	Elective	3	E
	Total	**16**	
Second Semester			
10-154-122	IT Service Concepts	3	2-2
10-154-193	Email in a Windows Environment**	3	2-2
10-154-194	Windows Server Pro**	3	2-2
10-154-198	Systems Administration Internship**	3	2-2
10-809-197	Technical Reporting	3	3-0
	Elective	3	E
	Total	**18**	

*Offered fall semester only **Offered spring semester only

Graduation Requirement

All Prerequisite courses require the grade of C or better in prerequisite in Information Technology (150-, 152-, 154-, 107-) course(s). All Information Technology courses require a grade of C or better in order to graduate.

Note: Students are assessed for correct placement in English or mathematics courses based on their scores on the COMPASS test or on completion of the appropriate prerequisite/s. Additionally, there may be courses in other subject areas that may use COMPASS scores as prerequisites when reading, writing, math, or critical thinking competencies are required.

Recommended Electives

Electives must be associate degree (100 level) or college transfer (200 level) courses.

10-106-101	Introduction to Keyboarding	1 credit
10-150-170	CCNA 1&2: Network Routing Basics	5 credits
	Note: Can be used in lieu of 10-150-101	
10-152-119	Introduction to Programming with Javascript	3 credits
10-152-120	Website Development - XHTML	3 credits

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Program Courses

10-150-101 Network Essentials 3 credits
Develop fundamental networking skills including an understanding of network hardware, installation, security and troubleshooting in a corporate environment. Through classroom and hands-on activities, learn how computers exchange information and how the Internet functions.

10-150-162 Computer Systems Security 3 credits
Introduces the basics of network security. The student is introduced to computer network vulnerabilities and threats and how to safeguard computer networks from those vulnerabilities and threats. This course exposes the student to network security planning, network security technology, network security organization and the legal and ethical issues associated with network security. Students learn the skills necessary for Security+ certification. Prerequisites: 10-150-160, 10-154-184 and one of the following: 10-150-101 or 10-150-170.

10-152-104 Windows PowerShell 3 credits
Windows PowerShell is used in the Microsoft world for administration and management of Windows Clients. This class will introduce IT students to PowerShell and how it is used for administering Microsoft Networks. Students will develop a sound understanding of administering Window's environments using PowerShell and developing scripts using basic programming logic. Prerequisite: 10-154-184.

10-154-122 IT Service Concepts 3 credits
Introduces the "value added" customer service roles and responsibilities of an IT professional; the components of a successful IT support infrastructure, customer service as the bottom line for IT operations, the evolution of IT support, industry trends, teamwork, IT professional work habits. Explores listening, written and verbal communications skills and critical thinking skills to resolve incidents. Examines how to identify and defuse challenging customer behavior, solve and prevent problems, and the importance of documentation. Course addresses awareness of best practices of the ITIL framework.

10-154-184 Windows Client 3 credits
Learn how to install, configure and administer a Windows desktop operating system. Work in a computer laboratory setting to develop the real-world expertise needed to set up and support the Windows desktop environment. As you progress through topics including Windows installation, hardware device configuration and establishing network connectivity, you are also preparing for Microsoft Exam 70-620. As an added bonus you will learn the operation of VMWare Workstation. Prerequisite: Working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management).

10-154-186 Windows Network Infrastructure 3 credits
Gain the skills necessary for supporting and configure a Windows Network infrastructure including name resolution, file and print services, and remote access. Learn the practical skills required to troubleshoot and monitor network problems while preparing for Microsoft MCTS Exam 70-642. Prerequisites: 10-107-111, 10-154-184 and completion or concurrent enrollment in one of the following: 10-150-101 or 10-150-170.

10-154-188 Windows Active Directory 3 credits
Gain the skills to administer and support a Windows Active Directory environment—and prepare for Microsoft Exam 70-640—a core requirement for the MCTS Windows Server Specialization. Gain practical experience managing a Windows Active Directory infrastructure, including configuration, backup ad troubleshooting while preparing for Microsoft MCTS exam 70-640. Prerequisite: 10-154-186.

10-154-189 Computer Hardware Essentials 3 credits
This course presents a comprehensive overview of computer fundamentals and an introduction to operating systems. Students completing through hands-on activities and labs, this course will be able to work with internal components of a computer, assemble a computer system, work with the basics of an operating system and get exposure to computer tasks such as installation, configuration, diagnosing, preventive maintenance and basic networking and operating systems. CompTIA's A+ Certification is a widely accepted IT industry standard certification for PC technology. This course prepares students for CompTIA's A+ Essentials exam (CompTIA A+ exam 220-701). Prerequisite: Working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management).

10-154-190 Linux Server 3 credits
Introduces Linux with a focus on system administration skills. Topics include installation, file and directory management, command execution, input/output redirection and pipes, shell scripts, network services, security, troubleshooting and the X Window system. Prerequisite: 10-150-101 or 10-150-170.

10-154-191 A+ IT Technician 3 credits
This course presents an advanced exposure to computer operating systems and hardware. Students learn the functionality of operating systems and hardware components as well as suggested best practices in support roles. Through hands-on activities and labs, students learn how to configure a computer, install operating systems and computer software, and troubleshoot hardware problems. This course prepares students for CompTIA's A+ Practical Application exam (CompTIA 220-702). Prerequisites: 10-107-111 and 10-154-189.

10-154-193 Email in a Windows Environment 3 credits
Through the use of Microsoft Exchange Server, gain an understanding of the principles of a modern email system. Acquire the knowledge and skills necessary to install, configure, and administer Microsoft Exchange Server. Learn how to provide web access to Exchange using Microsoft's Outlook Web Access. Install and configure Instant Messaging and learn how to monitor and tune Exchange Server. Prepare for the Microsoft MCP examination on Exchange Server. Prerequisite: 10-154-188.

10-154-194 Windows Server Pro 3 credits
Complete your education in Windows Server Support—and prepare for Microsoft Exam 70-646—while learning the day to day skills required for supporting Windows web, infrastructure and application servers. Learn the essentials of Windows scripting and batch files and other desktop tools required to profile and monitor Windows Servers. Prerequisites: 10-154-186 and 10-154-188.

10-154-198 Systems Administration Internship 3 credits
Provides work experience in an area data center environment offering a variety of experiences managing and operating computer systems. The student spends approximately 15 hours per week at the internship site. By consent of instructor, a special project may be substituted for the internship. Prerequisites: 10-107-175, 10-150-162 and 10-154-188 or consent of instructor.

Additional Required Program Courses

10-107-111	Careers in IT	1 credit
10-107-175	Job Search Preparation	1 credit
10-150-160	IT Security Awareness	1 credit

Career Potential:

- **Microsoft Certified Technology Specialist(MCTS)**
- **Computer Systems Administrator**
- **Computer System Operator**
- **Systems Technician**
- **IS Technical Services Specialist**
- **Help Desk Analyst**
- **Email Administrator**

With additional education and/or work experience, graduates may find employment as:

- **Network Administrator**
- **Computer Operations Shift Supervisor**
- **Data Center Manager**
- **Chief Information Officer (CIO)**
- **Microsoft Certified Information Technology Professional (MCITP)**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Information Technology—
Help Desk Support Specialist

Effective: 2010-2011

Program Number: 31-154-7

Technical Diploma

Information Technology Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Program

The Help Desk Support Specialist program prepares students to interact with PC users providing first-line technical support resolving software, hardware and system problems. Students are trained to install, support, and maintain hardware and software and to ensure that all calls and problems are dealt with quickly and effectively. Installing, configuring, and troubleshooting software and hardware; basic network concepts, supporting new technologies, repairing workstations and performing upgrades are taught in a hands-on class atmosphere. Students gain an understanding of how a help desk functions and the role of customer service in today's world of technology. Students participate in on-the-job help desk internship/work experience with instructor supervision in area companies. Career opportunities exist in all areas of the country. This program may be used to help prepare for CompTIA A+ computer troubleshooting certification.

Requirements for Admission

1. High school diploma, HSED or GED with a minimum grade point average of 2.0 or equivalent
2. General knowledge of Microsoft Windows
3. Proficiency in MS Word and Excel

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-103-136	Word–Intermediate	1	1-0
10-107-111	Careers in IT	1	1-0
10-150-160	IT Security Awareness	1	1-0
10-154-122	IT Service Concepts	3	2-2
10-154-146	Help Desk Tools and Techniques*	3	2-2
10-154-189	Computer Hardware Essentials	3	2-2
10-801-195	Written Communication	3	3-0
	Total	**15**	

Second Semester			
10-103-139	Excel–Intermediate	1	1-0
10-107-175	Job Search Preparation	1	1-0
10-150-101	Network Essentials	3	2-2
10-154-147	Supporting Emerging Technologies**	3	2-2
10-154-148	Help Desk Specialist Internship**	3	2-2
10-154-191	A+ IT Technician	3	2-2
	Total	**14**	

*Offered fall semester only
**Offered spring semester only

Graduation Requirement

All Prerequisite courses require the grade of C or better in prerequisite in Information Technology (150-, 152-, 154-, 107-) course(s). All Information Technology courses require a grade of C or better in order to graduate.

Note: Students are assessed for correct placement in English or mathematics courses based on their scores on the COMPASS test or on completion of the appropriate prerequisite/s. Additionally, there may be courses in other subject areas that may use COMPASS scores as prerequisites when reading, writing, math, or critical thinking competencies are required.

MADISON AREA TECHNICAL COLLEGE

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Program Courses

10-107-111 Careers in IT 1 credit
Introduces students to the various careers available in the vast field of Information Technology and examines the Network Specialist, Programmer/Analyst, Web Programmer/Analyst, Computer Systems Administration Specialist and Security Specialist career paths. Students create an individualized career path plan as the capstone project for the course. Prerequisite: Working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management).

10-107-175 Job Search Preparation 1 credit
Introduction to planning and organizing a job search in information technology. Activities include the development of a personalized job search plan, correspondence and portfolio. Prerequisite: IT students must have completed all IT courses in the first semester.

10-150-101 Network Essentials 3 credits
Develop fundamental networking skills including an understanding of network hardware, installation, security and troubleshooting in a corporate environment. Through classroom and hands-on activities, learn how computers exchange information and how the Internet functions.

10-150-160 IT Security Awareness 1 credit
Provides a basic survey of the importance of IT security awareness and data confidentiality. This security awareness-training course walks users through every aspect of Information Security in a very broad, easy to understand way and explains to them the value of securing data, for both themselves and the organization. The class will introduce legislation, local, state and federal privacy policies and liability of individuals and institutions related to data confidentiality and integrity. The course will introduce risk management, security policies, and common threats and countermeasures. The course will also present best practices in access control and password policies.

10-154-122 IT Service Concepts 3 credits
Introduces the "value added" customer service roles and responsibilities of an IT professional; the components of a successful IT support infrastructure, customer service as the bottom line for IT operations, the evolution of IT support, industry trends, teamwork, IT professional work habits. Explores listening, written and verbal communications skills and critical thinking skills to resolve incidents. Examines how to identify and defuse challenging customer behavior, solve and prevent problems, and the importance of documentation. Course addresses awareness of best practices of the ITIL framework.

10-154-146 Help Desk Tools and Techniques 3 credits
Explores the customer service roles and responsibilities of an IT support professional. Examines the support software options for tracking and managing data: log, track, and escalate calls; resolve problems using a knowledge base. Covers documentation/reporting tools, asset management, asset management, change management, incident management, hotline support, performance reports, trends, and career resources. Includes hands-on, real-world projects using current Help Desk software.

10-154-147 Supporting Emerging Technologies 3 credits
Solve information technology problems using troubleshooting techniques (maintain and repair computers) for new technologies that are emerging and are in place for support. Discussion of what is the technology, functions of the technology, and support issues. Explore the concepts of building a computer, fixing annoyances, computer diagnostics and technical problems beyond basic troubleshooting. Prerequisites: 10-154-189 and 10-154-191 (or concurrent enrollment).

10-154-148 Help Desk Specialist Internship 3 credits
Learn the "value-added" importance of an IT support professional by performing at least two job-shadowing assignments at area IT Support or Help Desks operations. Receive on-the-job Help Desk environment work experience with instructor supervision in area companies. By consent of instructor, a special project may be substituted for the internship. Prerequisites: 10-107-111, 10-154-122, 10-154-146, 10-154-189 and completion of or concurrent enrollment in 10-107-175, 10-150-101, 10-154-147 and 10-154-191.

10-154-189 Computer Hardware Essentials 3 credits
This course presents a comprehensive overview of computer fundamentals and an introduction to operating systems. Students completing through hands-on activities and labs, this course will be able to work with internal components of a computer, assemble a computer system, work with the basics of an operating system and get exposure to computer tasks such as installation, configuration, diagnosing, preventive maintenance and basic networking and operating systems. CompTIA's A+ Certification is a widely accepted IT industry standard certification for PC technology. This course prepares students for CompTIA's A+ Essentials exam (CompTIA A+ exam 220-701). Prerequisite: Working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management).

10-154-191 A+ IT Technician 3 credits
This course presents an advanced exposure to computer operating systems and hardware. Students learn the functionality of operating systems and hardware components as well as suggested best practices in support roles. Through hands-on activities and labs, students learn how to configure a computer, install operating systems and computer software, and troubleshoot hardware problems. This course prepares students for CompTIA's A+ Practical Application exam (CompTIA 220-702). Prerequisites: 10-107-111 and 10-154-189.

10-103-139 Excel–Intermediate 1 credit
Work with financial functions, data tables, amortization schedules, hyperlinks, lists, templates, and multiple worksheets and workbooks. Prerequisite: Excel-Beginning, 10-103-133 or equivalent.

10-103-136 Word-Intermediate 1 credit
Illustrate documents with graphics; create and format web pages; add hyperlinks; merge Word documents; sort and filter records; work with Styles and Templates; use Outline view to develop multi-page documents, adding footnotes/endnotes, a Table of Contents, cross-references, sections and an Index. Prerequisite: 10-103-137.

10-801-195 Written Communication 3 credits
Develops writing skills which includes prewriting, drafting, revising, and editing. A variety of writing assignments is designed to help the learner analyze audience and purpose, research and organize ideas, and format and design documents based on subject matter and content. Also develops critical reading and thinking skills through the analysis of a variety of written documents.

Career Potential:

- **Customer Support Specialists**
- **Customer Call Center Specialist**
- **End User Support Specialist**
- **Help Desk Professional**
- **Microcomputer Application Specialist**
- **PC Support Technician**
- **Software Technician**
- **Technical Help Desk Support**
- **Technical Specialist**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Madison Area Technical College

Information Technology—
Information Security Certificate

Effective: 2010-2011

Program Number: 90-150-3

Certificate

Information Technology Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Certificate

The IT Information Security Certificate program provides comprehensive instruction for networking students and professionals who want to expand their skills in computer security. Students survey issues in IT security awareness, data confidentiality, network security, and legal and ethical issues associated with computer system security.

This certificate provides hands-on training in designing, planning and executing a vulnerability assessment on a computer network. Once the assessment is completed, students design a security plan to protect the network from threats. Students will be introduced to several firewall technologies including packet filtering, proxy firewalls, application gateways and circuit gateways. In addition, the students will be trained in properly securing a network using Virtual Private Networks (VPNs).

The IT Information Security Certificate prepares the student to test for two of the CISCO Certified Security Professional (CCSP) exams, Security+ certification and Certified Information System Security Professional (CISSP) certification.

Unique Requirements for Admission

Student must have a CCNA certification OR at least two years of practical experience in the Networking field, specifically with Cisco routing and hardware essentials experience. Student also must have working knowledge of the Linux operating system. Second year Network Specialist program students may be considered.

Apply directly to the Center. The completed application form should include verification of years of employment, if necessary. No application fee is required for this certificate.

Curriculum

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-150-162	Computer Systems Security*	3	2-2
10-150-164	Penetration Testing/Network Defense*	3	2-2
10-150-193	Network Security Design**	3	2-2
10-150-194	Firewall/VPN Technologies**	3	2-2
10-150-196	Intrusion Detection Systems**	3	2-2
	Total	**15**	

*Offered fall semester only
**Offered spring semester only

Note: All Information Technology courses require a grade of C or better in order to receive the certificate.

Unique Requirements for Completion

The certificate will be awarded upon completion of the requirements with a minimum of a 2.0 grade average and no course grade lower than a C. Students are responsible for contacting the Center upon completion of the required classes. Certificate will be awarded after completion of all requirements is verified.

Madison Area Technical College
IT—Information Security Certificate

Program Number: 90-150-3

Courses

10-150-162 Computer Systems Security 3 credits
Introduces the basics of network security. The student is introduced to computer network vulnerabilities and threats and how to safeguard computer networks from those vulnerabilities and threats. This course exposes the student to network security planning, network security technology, network security organization, and the legal and ethical issues associated with network security. In this class, students learn the skills necessary for Security+ certification. Prerequisite: grade of C or better in 10-150-160, 10-154-184 and one of the following 10-150-101 or 10-150-170 or acceptance into certificate.

10-150-164 Penetration Testing/ Network Defense 3 credits
Introduces the network security specialist to the various methodologies for attacking a network. The student is introduced to the concepts, principles and techniques, supplemented by hands-on exercises for attacking and disabling a network. These methodologies are presented within the context of properly securing the network. The course emphasizes network attack methodologies with the emphasis on student use of network attack techniques and tools. Prerequisite: grade of C or better in 10-150-162.

10-150-193 Network Security Design 3 credits
This course affords the network security specialist the opportunity to design a secure network in a team environment using the skills learned from the prerequisite classes. The student must demonstrate the ability to design, plan and execute an infrastructure that represents the services offered by a common business or organization. The student will research their part of the design and must prepare written document including notes, diagrams, references, and implementation instructions of their part of the total design. Prerequisite: 10-150-164 and completion or concurrent enrollment in 10-150-196.

10-150-194 Firewall/PVN Technologies 3 credits
Introduces the network security specialist to the various methodologies for defending a network. Students are introduced to the concepts, principles, types and topologies of firewalls to include packet filtering, proxy firewalls, application gateways, circuit gateways and stateful inspection. Students also learn the skills necessary for one of the CISCO Certified Security Professional (CCSP) certification exams. Prerequisite: grade of C or better in 10-150-172 CCNA3&4: Switching and WAN Access or consent of instructor; and acceptance into certificate.

10-150-196 Intrusion Detection Systems 3 credits
This course introduces the basics of Intrusion Detection and network defense strategies. The student will be introduced to the tools and techniques used to identify network threats and recommended ways to mitigate those threats. The student must demonstrate the ability to plan, design, and build a network IDS that fulfills the security needs of a common business or organization. Prerequisite: 10-150-164 and 10-150-194 or consent of instructor.

Career Potential:

- **Information Security Technician**
- **Cyber Security Professional**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Effective: 2010-2011

Information Technology— iPhone Applications Development Certificate

Program Number: 90-152-9

Certificate

Information Technology Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Certificate

This certificate is designed to prepare information systems professionals to develop iPhone applications. Students use the SDK environment on Apple computers for development. Two classes are used to teach students the necessary skills to make them successful in iPhone Applications Development.

Unique Requirements for Admission

- Madison College IT programming students who have completed either 10-152-102 Advanced Visual Basic .NET Programming, 10-152-112 Advanced Java Programming, 10-152-141 C# Programming in Visual Studio.NET or 10-152-157 Ruby on Rails Development.

OR

- IT professionals with 2 years experience in an Object Oriented programming language (e.g. Java, Visual Basic .NET, C#, Ruby on Rails),

Application

Apply directly to the Center. The completed application form should include verification of years of employment, if necessary. No application fee is required for the certificate.

Unique Requirements for Completion

The certificate will be awarded upon completion of the requirements with a minimum of a 2.0 grade average and no course grade lower than a C. Students are responsible for contacting the Center upon completion of the required classes. Certificate will be awarded after completion of all requirements is verified.

Curriculum

Courses		Credits	Hrs/week Lec-Lab
10-152-143	iPhone Applications Development*	3	2-2
10-152-153	Advanced iPhone Applications Development**	3	2-2
	Total	**6**	

Note: All Information Technology courses require a grade of C or better in order to receive the certificate.

*Offered fall semester only
**Offered spring semester only

Courses

10-152-143 iPhone Applications Development 3 credits
Introduces programming simple iPhone applications using Cocoa and Objective C. Students will learn basic Objective C concepts, iPhone programming basics, and use the SDK environment on Apple Macintosh computers with OS X as a development platform. Design concepts and programming tools will be integrated with an emphasis on developing and deploying iPhone applications. Prerequisite: Must be enrolled in iPhone Applications Development Certificate or have obtained a grade of "C' or better in one of the following: 10-152-102 Advanced Visual Basic .NET Programming, 10-152-112 Advanced Java Programming, 10-152-141 C# Programming in Visual Studio.NET or 10-152-157 Ruby on Rails Development.

10-152-153 Advanced iPhone Applications Development 3 credits
Focuses on advanced features of the iPhone for applications development, including GPS for location-aware applications, motion sensing, and network-aware applications. A portion of the class deals with application design issues including sharing applications. Prerequisite: 10-152-143 iPhone Applications Development.

Career Potential:

- **iPhone Applications Developer**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Effective: 2010-2011

Information Technology—
Java Professional Developer Certificate

Program Number: 90-152-7

Certificate

Information Technology Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Certificate

This certificate is designed to prepare information systems professionals to use the Java programming language for web development.. Three classes are used to teach students the necessary skills to make them successful in Java web development.

Unique Requirements for Admission

1) Associate Degree in programming (e.g. IT Programmer/Analyst) OR 2 years experience in a programming language (e.g. COBOL, Visual Basic, etc.)

2) Experience using a relational database (e.g. Access, MySQL, SQL Server, Oracle)

3) Experience in basic web development using HTML.

Application

Apply directly to the Center. The completed application form should include verification of years of employment, if necessary. No application fee is required for the certificate.

Unique Requirements for Completion

The certificate will be awarded upon completion of the requirements with a minimum of a 2.0 grade average and no course grade lower than a C. Students are responsible for contacting the Center upon completion of the required classes. Certificate will be awarded after completion of all requirements is verified.

Curriculum

Courses		Credits	Hrs/week Lec-Lab
10-152-111	Java Programming	3	2-2
10-150-112	Advanced Java Programming*	3	2-2
10-150-113	Enterprise Java Development**	3	2-2
	Total	**9**	

Note: All Information Technology courses require a grade of C or better in order to receive the certificate.

*Offered fall semester only
**Offered spring semester only

Courses

10-152-111 Introduction to Java Programming **3 credits**
Introduces programming and object-oriented design concepts using the Java programming language. Students learn all the Java programming basics and use a simple text editor as a development environment. Design concepts and programming tools will be integrated with an emphasis on practical business solutions.

10-152-112 Advanced Java Programming **3 credits**
Focuses on the server side of application programming for the web. Topics include: Java servlets, database access with JDBC, JavaServer Pages and JavaBeans. A portion of the class deals with application design issues in a web environment. Prerequisite: 10-152-111.

10-152-113 Enterprise Java Programming **3 credits**
The third class of the Java sequence explores advanced Java topics within the J2EE application framework. Topics include JDBC, Enterprise JavaBeans, Servlets, JSPs, XML, JMS, JNDI, Web Services, custom tag libraries, web applications and enterprise applications. Prerequisite: 10-152-112.

Career Potential:

- **Java Web Developer**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Information Technology—
LAMP Open Source Development Certificate

Effective: 2010-2011

Program Number: 90-152-3

Certificate

Information Technology Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Certificate

The LAMP Open Source Development certificate provides comprehensive instruction for programming students and professionals who want to expand their skills in open source development. Students learn to develop web applications using open source development tools including the PHP and Ruby programming languages, Rails web development framework, MySQL database management system, Apache Web server, and Linux operating system. This certificate provides hands-on training in designing, planning and implementing web applications.

Unique Requirements for Admission

Students must have a minimum of three years of related work experience or be second-year students in an Information Technology programming degree or have permission of the instructor to enroll for this certificate. The student is expected to have exposure to a relational database management system (RDBMS) (e.g., Microsoft Access, Microsoft SQL Server, Oracle, DB2 or an equivalent). The course 10-152-124 Introduction to Database may be taken if a student does not have work experience with an RDBMS. The student is also expected to have exposure to a programming language (e.g., COBOL, Visual Basic, C++, Java, etc.) either through professional experience or IT department coursework.

Apply directly to the Center. The completed application form should include verification of years of employment, if necessary. No application fee is required for this certificate.

Completion

It is the student's responsibility to request the certificate from the Center for Agriscience and Technologies office (608-246-6800) once all required classes have been completed and grades have been received. A grade of C or better is required in each course to award the certificate.

Curriculum

First Semester		Credits	Hrs/week Lec-Lab
10-152-157	Ruby on Rails Development**	3	2-2
10-152-166	PHP Web Development with MySQL	3	2-2
10-152-167	Advanced PHP and MySQL Web Development*	3	2-2
10-154-190	Linux Server	3	2-2
	Semester Total	**12**	

*Offered fall semester only **Offered spring semester only

Note: All Information Technology courses require a grade of C or better in order to receive the certificate.

10-152-166 PHP Web Development with MySQL 3 credits
This course introduces the student to dynamic web page development using the PHP programming language. Students will learn how PHP works, how to effectively use many of its powerful features, and how to design and build their own PHP web applications. The popular MySQL open source database management software (DBMS) will also be introduced as a powerful backend for PHP websites. Prerequisite: acceptance into certificate.

10-152-157 Ruby on Rails Development 3 credits
Introduces the student to dynamic web page development using the Ruby on Rails web development framework. The course will also use the popular MySQL open source database management system. Topics will include an introduction to the Ruby programming language, installing Ruby and Ruby on Rails, an overview of the Rails Framework, ActiveRecord basics, ActionController coding, Action Views, AJAX and the Web 2.0, ActionMailer basics, security, deployment, and scaling. Students will produce a very modern web application that can be adapted to many professional web development needs. Prerequisite: Acceptance into certificate and grade of C or better in 10-152-166.

10-152-167 Advanced PHP and MySQL Web Development 3 credits
This course prepares the student to implement professional PHP and MySQL web applications. Students will learn advanced techniques for session management, validation, and authentication. Advanced web application features such as shopping carts, content management, web forums and connecting to web services are discussed. Installation and customization of open source PHP web applications is also covered. Prerequisite: grade of C or better in 10-152-166.

10-154-190 Linux Sever 3 credits
Introduces Linux with a focus on system administration skills. Topics include: installation, file and directory management, command execution, input/output redirection and pipes, shell scripts, network services, security, troubleshooting and the X Window system. Prerequisite: acceptance into certificate.

Career Potential:

- **LAMP Web Developer**
- **Web Application Developer**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Effective: 2010-2011

Information Technology—
Microsoft® Certified Information Technology Professional Certificate

Program Number: 90-154-7

Certificate

Information Technology Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Certificate

This certificate is designed for students who have already graduated with a degree in Computer Information Systems, Information Technology, or have significant IT industry work experience to gain the knowledge required to earn the Microsoft® Certified Information Technology Professional (MCITP): Windows Server designation. The MCITP certificate program provides students the skills required to install and administer Windows clients and servers. In addition, the students will obtain the skills required to administer a Windows network environment and learn the fundamentals of Active Directory.

Windows clients and servers are the industry's most widely used server and client operating systems. The Windows family includes Windows 2003 Server, Windows 2008 Server, Windows XP and Windows Vista. The tests that constitute the MCITP certification are also applicable to other Microsoft certifications. For further information on this and other Microsoft certifications, see the Microsoft website at www.microsoft.com/learning/http://www.microsoft.com/traincert/mcp.

Windows ® is a registered trademark of Microsoft Corporation.

Admission Information

1. Students are expected to have exposure to Windows server and client administration and understand the basics of computer systems architectures.

2. Students apply directly to the Center. The completed application form should include verification of years of employment, if necessary. No application fee is required for this certificate. Students are responsible for contacting the Center upon completion of the required classes. Certificate will be awarded after completion of all requirements is verified.

3. A minimum of an associate degree in computer information systems, information technology, or business data processing, or a minimum of two years of related work experience, is required.

4. For students who do not have the above requirements, contact the Center for further options.

Curriculum

Core Curriculum

In order to receive Madison College's Microsoft Certified Systems Administrator Certificate, students must complete the following required core courses *plus* one of the three optional sequences shown below.

Course		Credits	Hrs/week Lec-Lab
10-152-104	Windows PowerShell	3	2-2
10-154-184	Windows Client	3	2-2
10-154-186	Microsoft Network Infrastructure	3	2-2
10-154-188	Windows Active Directory*	3	2-2
10-154-194	Windows Server Pro**	3	2-2
	Total	**15**	

Elective Option:

Students also have the option of learning the latest version of Microsoft's premier messaging system, Exchange Server by completing the following course.

Course		Credits	Hrs/week Lec-Lab
10-154-193	Email in a Windows Environment**	3	2-2
	Total	**3**	

*Offered fall semester only
**Offered spring semester only

Note: All Information Technology courses require a grade of C or better in order to receive the certificate.

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Courses

10-152-104 Windows PowerShell 3 credits
Windows PowerShell is used in the Microsoft world for administration and management of Windows Clients. This class will introduce IT students to PowerShell and how it is used for administering Microsoft Networks. Students will develop a sound understanding of administering Window's environments using PowerShell and developing scripts using basic programming logic. Prerequisite: 10-154-184

10-154-184 Windows Client 3 credits
Learn how to install, configure and administer a Windows desktop operating system. Work in a computer laboratory setting to develop the real-world expertise needed to set up and support the Windows desktop environment. As you progress through topics including Windows installation, hardware device configuration and establishing network connectivity, you are also preparing for Microsoft Exam 70-620. As an added bonus you will learn the operation of VMWare Workstation. Prerequisite: Working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management).

10-154-186 Windows Network Infrastructure 3 credits
Gain the skills necessary for supporting and configure a Windows Network infrastructure including name resolution, file and print services, and remote access. Learn the practical skills required to troubleshoot and monitor network problems while preparing for Microsoft MCTS Exam 70-642. Prerequisite: 10-154-184, and completion or concurrent enrollment in one of the following: 10-150-101 or 10-150-170 or equivalent work experience or acceptance into certificate.

10-154-188 Windows Active Directory 3 credits
Gain the skills to administer and support a Windows Active Directory environment—and prepare for Microsoft Exam 70-640—a core requirement for the MCTS Windows Server Specialization. Gain practical experience managing a Windows Active Directory infrastructure, including configuration, backup ad troubleshooting while preparing for Microsoft MCTS exam 70-640. Prerequisite: 10-154-186.

10-154-193 Email in a Windows Environment 3 credits
Through the use of Microsoft Exchange Server, gain an understanding of the principles of a modern email system. Acquire the knowledge and skills necessary to install, configure, and administer Microsoft Exchange Server. Learn how to provide web access to Exchange using Microsoft's Outlook Web Access. Install and configure Instant Messaging and learn how to monitor and tune Exchange Server. Prepare for the Microsoft MCP examination on Exchange Server. Prerequisite: 10-154-188.

10-154-194 Windows Server Pro 3 credits
Complete your education in Windows Server Support—and prepare for Microsoft Exam 70-646—while learning the day to day skills required for supporting Windows web, infrastructure and application servers. Learn the essentials of Windows scripting and batch files and other desktop tools required to profile and monitor Windows Servers. Prerequisites: 10-154-186 and 10-154-188.

Unique Requirements for Completion

The certificate will be awarded upon completion of the requirements with a minimum of a 2.0 grade average and no course grade lower than a C. Students are responsible for contacting the Center upon completion of the required classes. Certificate will be awarded after completion of all requirements is verified.

Career Potential:

- **Microsoft Certified Information Technology Professional**

More detailed and updated information on this program may be available a: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Information Technology—
Microsoft® Visual Studio.NET Certificate

Program Number: 90-152-5

Certificate

Information Technology Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Certificate

This certificate is designed to prepare IT professionals to use Microsoft's Visual Studio.NET© applications development suite. Each student takes programming courses in Visual Basic.NET©. In addition, the students take a course in ASP.NET giving them experience and understanding of web services provided with these products. Students also take a course in ActiveX Data Objects (ADO.NET) giving them training in database access that provides platform interoperability and scalable data access. This IT–Microsoft Visual Studio.NET© Certificate allows students to augment skills learned in Information Technology two-year associate degree programs.

Visual Studio.NET© is Microsoft's tool for building next-generation web applications and XML web services. Visual Studio.NET empowers developers to design broad-reach Web applications for any device and any platform. In addition, Visual Studio.NET is built on, and fully integrated with, the Microsoft.NET Framework. This integration enables Visual Studio.NET to provide support for multiple programming languages and to perform many common programming tasks automatically—freeing developers to rapidly create web applications using their language of choice.

This certificate program is being aligned with the Microsoft® Certified Applications Developer (MCAD) exams, which will lead to Microsoft® Certified Application Developer (MCAD) certification. For further information see the Microsoft® Website: http://www.microsoft.com/traincert/mcp/mcad.

Unique Requirements for Admission

Students must have a minimum of three years of related work experience or be second-year students in an Information Technology programming degree. The student is expected to have exposure to a relational database management system (RDBMS) (e.g., Microsoft Access, Microsoft SQL Server, Oracle, DB2 or an equivalent). The course 10-152-124, Introduction to Database, may be taken if a student does not have work experience with an RDBMS. The student is also expected to have exposure to a programming language (e.g., COBOL, Visual Basic, C++, Java, etc.) either through professional experience or IT department coursework.

Apply directly to the Center. The completed application form should include verification of years of employment, if necessary. No application fee is required for this certificate.

Curriculum

Courses		Credits	Hrs/week Lec-Lab
10-152-101	Introduction to Visual Basic.NET Programming	3	2-2
10-152-102	Advanced Visual Basic.NET*	3	2-2
10-152-103	Web Application Development Using ASP.NET**	3	2-2
10-152-141	C# Programming in Visual Studio.NET** (**optional**)	(3)	(2-2)
	Total	**9**	

*Offered fall semester only **Offered spring semester only

Note: All Information Technology courses require a grade of C or better in order to receive the certificate.

Courses

10-152-101 Introduction to Visual Basic.NET Programming 3 credits
Teaches the basic concepts of VB.NET programming. Topics include the Visual Studio Integrated Development Environment, program logic constructs, event-driven programming techniques, and development in an object-oriented context.

10-152-102 Advanced Visual Basic.NET 3 credits
The course provides students with a comprehensive understanding of object-oriented system development. It examines and uses the prewritten .NET Framework classes and explores the MSDN help facility. Topics include: collections, exception handling, interfaces and advanced development techniques such as XML and database programming using ADO.NET. Prerequisites: 10-152-101 and 10-152-124.

10-152-103 Web Application Development Using ASP.NET 3 credits
Students learn to develop Microsoft ASP.NET applications that deliver dynamic content to the web. An emphasis is placed on server-side programming and the role of ASP.NET plays. As part of the class, students create web forms with server controls, display dynamic data from a database using Microsoft ADO.NET, read XML configuration files, and learn to debug ASP.NET web pages. Prerequisites: grade of C or better in 10-152-102.

Optional Course

10-152-141 C# Programming in Visual Studio.NET (optional) 3 credits
This course will give developers the skills needed to develop applications using the C# programming environment within Microsoft Visual Studio.NET. The course will focus on language syntax, program structure and implementation guidelines for developing applications using the C# development environment. Prerequisite: one year of working knowledge or coursework in another programming language.

Unique Requirements for Completion

The certificate will be awarded upon completion of the requirements with a minimum of a 2.0 grade average and no course grade lower than a C. Students are responsible for contacting the Center upon completion of the required classes. Certificate will be awarded after completion of all requirements is verified.

Career Potential:

- **Visual Studio.NET Developer**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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MADISON AREA TECHNICAL COLLEGE

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Madison Area Technical College

Information Technology—
Network Security Specialist

Effective: 2010-2011

Program Number: 10-150-3

Associate in Applied Science Degree

Information Technology Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Program

The Network Security Specialist Program provides comprehensive instruction in computing systems and networks that have an important impact on data confidentiality, integrity and availability. Emphasis is placed on vigilant security awareness throughout the curriculum. The program introduces the student to computer network threats and the appropriate incident response, to include defenses, countermeasures and computer forensics. Students are exposed to scenarios reflecting the legal and ethical issues associated with information security. Extensive hands-on labs build practical experience in configuring a variety of network operating systems, firewalls, virtual private networks (VPN), packet filters and intrusion detection systems (IDS) to maximize information security in the network.

Requirements for Admission

1. High school diploma, HSED, or GED with a minimum grade point average of 2.0 or equivalent
2. General knowledge of Microsoft Windows

Program Courses

10-107-111 Careers in IT 1 credit
Introduces students to the various careers available in the vast field of Information Technology and examines the Network Specialist, Programmer/Analyst, Web Programmer/Analyst, Computer Systems Administration Specialist and Security Specialist career paths. Students create an individualized career path plan as the capstone project for the course. Prerequisite: Working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management).

10-107-175 Job Search Preparation 1 credit
Introduction to planning and organizing a job search in Information Technology. Activities include the development of a personalized job search plan, correspondence, resumé and portfolio. Prerequisite: IT students must have completed all IT courses in the first two semesters.

10-150-160 IT Security Awareness 3 credits
Provides a basic survey of the importance of IT security awareness and data confidentiality. This security awareness-training course walks users through every aspect of Information Security in a very broad, easy to understand way and explains to them the value of securing data, for both themselves and the organization. The class will introduce legislation, local, state and federal privacy policies and liability of individuals and institutions related to data confidentiality and integrity. The course will introduce risk management, security policies, and common threats and countermeasures. The course will also present best practices in access control and password policies.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-107-111	Careers in IT	1	1-0
10-150-160	IT Security Awareness	1	1-0
10-150-170	CCNA1&2: Networking Routing Basics	5	3-4
10-154-184	Windows Client	3	2-2
10-801-195	Written Communication	3	3-0
10-804-144	Math of Finance	3	3-0
	Total	**16**	
Second Semester			
10-150-172	CCNA3&4: Switching and WAN Access	3	2-2
10-152-104	Windows PowerShell	3	2-2
10-154-186	Windows Network Infrastructure	3	2-2
10-154-190	Linux Server	3	2-2
10-801-196	Oral/Interpersonal Communication	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Total	**18**	

SECOND YEAR			
First Semester			
10-107-175	Job Search Preparation	1	1-0
10-150-164	Penetration Testing/Network Defense*	3	2-2
10-150-185	Introduction to Computer Forensics*	3	2-2
10-152-105	Linux Shell*	3	2-2
10-801-197	Technical Reporting	3	3-0
10-809-166	Introduction to Ethics: Theory and Applications	3	3-0
	Total	**16**	
Second Semester			
10-150-193	Network Security Design**	3	2-2
10-150-194	Firewall/VPN Technologies**	3	2-2
10-150-196	Intrusion Detection Systems**	3	2-2
10-150-197	Network Security Internship**	3	2-2
10-809-197	Contemporary American Society	3	3-0
	Elective	3	E
	Total	**18**	

Note: Students are assessed for correct placement in English or mathematics courses based on their scores on the COMPASS test or on completion of the appropriate prerequisite/s. Additionally, there may be courses in other subject areas that may use COMPASS scores as prerequisites when reading, writing, math, or critical thinking competencies are required.

Graduation Requirement

All prerequisite courses require the grade of C or better in prerequisite in Information Technology (150-, 152-, 154-, 107-) course(s). All Information Technology courses require a grade of C or better in order to graduate.

Recommended Electives

Electives must be associate degree (100 level) or college transfer (200-level) courses

10-150-150	VOIP Convergence Fundamentals*	3 credits
10-150-176	Intermediate Networking	3 credits
10-152-119	Intro to Programming with Javascript	3 credits
10-154-188	Windows Active Directory*	3 credits

*Offered fall semester only
**Offered spring semester only

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Program Courses (continued)

10-150-164 Penetration Testing/ Network Defense 3 credits
Introduces the network security specialist to the various methodologies for attacking a network. The student is introduced to the concepts, principles and techniques, supplemented by hands-on exercises for attacking and disabling a network. These methodologies are presented within the context of properly securing the network. The course emphasizes network attack methodologies with the emphasis on student use of network attack techniques and tools. Prerequisites: 10-150-162 and
10-154-190.

10-150-170 CCNA1&2: Networking and Routing Basics 5 credits
Introduction to Networking basics and routing with a focus on network terminology, protocols, local area networks (LANs), Open System Interconnection (OSI) model, cabling, routers and router programming, Ethernet, Internet Protocol (IP) addressing, subnetting, Variable Length Subnet Masking (VLSM), Classless Inter-Domain Routing (CIDR) and network standards. The student will develop skills on configuring a router, using the Cisco IOS Software, and configuring routing using static routes and routing protocols, including RIP version 1 & 2, EIGRP, and single area OSPF. Involves extensive lab work using router, switches, and simulations. NOTE: Must take 10-150-172: CCNA3&4 within one year of completion of 10-150-170 CCNA1&2. Prerequisite: Working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management).

10-150-172 CCNA3&4: Switching & WAN Access 3 credits
A continuation of CCNA1&2, this course focuses on switching concepts and WAN access. Topics include Virtual LANs (VLANs), switch configuration, LAN and WAN network design, Rapid Spanning Tree Protocol, trunking, VLAN Trunking Protocol (VTP), access lists, Network Address Translation (NAT), DHCP, wide area networks (WANs), WAN connections (cable, DSL, Frame Relay, and leased lines), Quality of Service (QoS), VPN basics, and network monitoring. Prerequisites: 10-107-111 and 10-150-170 (must follow 10-150-170: CCNA1&2 within one year).

10-150-185 Introduction to Computer Forensics 3 credits
This course provides a broad overview of computer forensics and investigation tools and techniques. All major personal computer operating system architectures and disk structures will be discussed, as well as what computer forensic hardware and software tools are available. Other topics include the importance of digital evidence controls, how to process crime and incident scenes, the details of data acquisition, computer forensic analysis, email investigations, image file recovery, investigative report writing, and expert witness requirements. The course provides a range of laboratory and hands-on assignments that teach about theory as well as the practical application of computer forensic investigation. Prerequisites: 10-150-172, 10-154-186 and 10-154-190.

10-150-193 Network Security Design 3 credits
This course affords the network security specialist the opportunity to design a secure network in a team environment using the skills learned from the prerequisite classes. The student must demonstrate the ability to design, plan and execute an infrastructure that represents the services offered by a common business or organization. The student will research their part of the design and must prepare written document including notes, diagrams, references, and implementation instructions of their part of the total design. Prerequisites: 10-150-164 and completion or concurrent enrollment in 10-150-196.

10-150-194 Firewall/VPN Technologies 3 credits
Introduces the network security specialist to the various methodologies for defending a network. Students are introduced to the concepts, principles, types and topologies of firewalls to include packet filtering, proxy firewalls, application gateways, circuit gateways and stateful inspection. Students also learn the skills necessary for one of the CISCO Certified Security Professional (CCSP) certification exams. Prerequisite: 10-150-172

10-150-196 Intrusion Detection Systems 3 credits
This course introduces the basics of Intrusion Detection and network defense strategies. The student will be introduced to the tools and techniques used to identify network threats and recommended ways to mitigate those threats. The student must demonstrate the ability to plan, design, and build a network IDS that fulfills the security needs of a common business or organization. Prerequisites: 10-150-164, 10-150-194 and
10-154-190.

10-150-197 Network Security Internship 3 credits
An on-the-job experience in Madison area companies that maintain, manage and secure computer networks. The emphasis is on hands-on design, installation, configuration, management, documentation, troubleshooting, maintenance and securing of LANs. By consent of instructor, a special project may be substituted for the internship. Prerequisites: 10-107-175, 10-150-162, 10-150-164, 10-150-185 and 10-150-194.

10-152-104 Windows PowerShell 3 credits
Windows PowerShell is used in the Microsoft world for administration and management of Windows Clients. This class will introduce IT students to PowerShell and how it is used for administering Microsoft Networks. Students will develop a sound understanding of administering Window's environments using PowerShell and developing scripts using basic programming logic. Prerequisite: 10-154-184.

10-152-105 Linux Shell 3 credits
This course is designed to introduce students who have basic knowledge of the Linux operating system to advanced command line techniques. During the course students will develop the ability to construct both single line and multi line reusable script files. Students will be required to automate simple tasks using the shell. Prerequisite: 10-152-104 and 10-154-190.

10-154-184 Windows Client 3 credits
Learn how to install, configure and administer a Windows desktop operating system. Work in a computer laboratory setting to develop the real-world expertise needed to set up and support the Windows desktop environment. As you progress through topics such as installing the operating system, configuring hardware devices and establishing network connectivity, you are also preparing for Microsoft Exam 70-620. As an added bonus you will learn the operation of VMWare Workstation. Prerequisite: Working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management).

10-154-186 Windows Network Infrastructure 3 credits
Gain the skills necessary for supporting and configure a Windows Network infrastructure including name resolution, file and print services, and remote access. Learn the practical skills required to troubleshoot and monitor network problems while preparing for Microsoft MCTS Exam 70-642. Prerequisites: 10-107-111, and 10-154-184 and completion or concurrent enrollment in one of the following: 10-150-101 or 10-150-170.

10-154-190 Linux Server 3 credits
Introduces Linux with a focus on system administration skills. Topics include installation, file and directory management, command execution, input/output redirection and pipes, shell scripts, network services, security, troubleshooting and the X Window system. Prerequisite: 10-150-101 or 10-150-170.

Career Potential:

Entry level positions can include:
- **Network Control Operator**
- **Network Support Technician**
- **Network Support Services**
- **Network Technician**
- **Network Specialist**
- **Network Professional**
- **Networking Services**
- **Assistant LAN Manager**
- **Assistant LAN Administrator**
- **Assistant Network Administrator**

With experience, networking specialist can find work as:

- **LAN Manager**
- **LAN Administrator**
- **Network Support Services Manager**
- **Network Engineer**
- **Network Administrator**
- **Web Designer**

Upper Management positions can include:

- **Networking Manager**
- **Manager of Voice/Data Networks**
- **Intranet (sic) Designer**
- **Data Communications Analyst**
- **Director of Networks**
- **Network Security Specialist**
- **Cyber Security Professional**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Information Technology—
Network Specialist

Effective: 2010-2011

Program Number: 10-150-2

Associate in Applied Science Degree

Information Technology Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Program

The Information Technology-Network Specialist program prepares qualified individuals to administer, install, maintain and troubleshoot data and voice networks. The Network Specialist has a working knowledge of Local Area Networks (LANs); Wide Area Networks (WANs), and their interconnectivity to nodes, servers, and other end user devices in the enterprise network. Students receive hands-on training in network operating systems, user administration, network security, network design, and implementing voice over IP (VoIP). Instruction includes: managing Network Operating Systems (NOS) and client software, network security measures, user accounting, and monitoring network event logs for problem resolution. The program also prepares the graduates to test for the Cisco CCNA (Cisco Certified Networking Associate), the Cisco CCNA-Voice, the MCTS (Microsoft Certified Technology Specialist): Windows Vista Configuration and Configuring Windows Server 2008 Network Infrastructure, the CompTIA A+, and the CompTIA Network+ certifications, as well as CCNA Security.

Requirements for Admission

1) High school diploma, HSED, or GED with a minimum grade point average of 2.0 or equivalent
2) General knowledge of Microsoft Windows

Program Courses

10-107-111 Careers in IT 1 credit
Introduces students to the various careers available in the vast field of Information Technology and examines the Network Specialist, Programmer/Analyst, Web Programmer/Analyst, Computer Systems Administration Specialist and Security Specialist career paths. Students create an individualized career path plan as the capstone project for the course. Prerequisite: Working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management) and experience sending and receiving email.

10-107-175 Job Search Preparation 1 credit
Introduction to planning and organizing a job search in Information Technology. Activities include the development of a personalized job search plan, correspondence, resumé and portfolio. Prerequisite: IT students must have completed all IT courses in the first two semesters. Prerequisite: 10-107-111.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-107-111	Careers in IT	1	1-0
10-150-160	IT Security Awareness	1	1-0
10-150-170	CCNA1&2: Networking and Routing Basics	5	3-4
10-154-184	Windows Client	3	2-2
10-801-195	Written Communication	3	3-0
10-804-144	Math of Finance	3	3-0
	Semester Total	**16**	
Second Semester			
10-150-172	CCNA3&4: Switching and WAN Access	3	2-2
10-152-104	Windows PowerShell	3	2-2
10-154-186	Windows Network Infrastructure	3	2-2
10-154-189	Computer Hardware Essentials	3	2-2
10-801-196	Oral/Interpersonal Communication	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Semester Total	**18**	
SECOND YEAR			
First Semester			
10-107-175	Job Search Preparation	1	1-0
10-150-150	VOIP Convergence Fundamentals*	3	2-2
10-150-176	Intermediate Networking*	3	2-2
10-154-190	Linux Server	3	2-2
10-801-197	Technical Reporting	3	3-0
10-809-166	Introduction to Ethics: Theory and Application	3	3-0
	Semester Total	**16**	
Second Semester			
10-150-151	Advanced Networking Topics**	3	2-2
10-150-194	Firewall/VPN Technologies**	3	2-2
10-150-195	Networking Internship**	3	2-2
10-154-122	IT Service Concepts	3	2-2
10-809-197	Contemporary American Society	3	3-0
	Elective	3	E
	Semester Total	**18**	

*Offered fall semester only **Offered spring semester only

Graduation Requirement

All Prerequisite courses require the grade of C or better in prerequisite in Information Technology (150-, 152-, 154-, 107-) course(s). All Information Technology courses require a grade of C or better in order to graduate

Note: Students are assessed for correct placement in English or mathematics courses based on their scores on the COMPASS test or on completion of the appropriate prerequisite/s. Additionally, there may be courses in other subject areas that may use COMPASS scores as prerequisites when reading, writing, math, or critical thinking competencies are required.

Recommended Electives

Electives must be associate degree (100 level) or college transfer (200 level) courses

10-152-119	Introduction to Programming using Javascript	3 credits
10-152-120	Website Development	3 credits
10-154-188	Windows Active Directory*	3 credits
10-154-193	Email in a Windows Environment**	3 credits

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Program Courses (continued)

10-150-150 VOIP Convergence Fundamentals 3 credits
This class will introduce students to the terms and definitions of Analog phone systems and Voice over IP (VoIP) networks. It introduces students to the building and configuration of Cisco IP Telephony infrastructure using Cisco Call Manger Express and Cisco VoIP phones. Topics included in this course will be modifying the LAN and WAN to accommodate IP Telephony and translating the various layers in the OSI model. Troubleshooting will be emphasized. Prerequisite: 10-150-172.

10-150-151 Advanced Networking Topics 3 credits
This class introduces more advanced networking topics from the CCNP exams, such as: Implementing QoS on converged networks, specific IP QoS mechanisms for implementing the DiffServ QoS model, wireless security and basic wireless management, security in a switched network, and gateway redundancy. Quality of Service (QoS) will be used to design and implement a structure to prioritize voice and data applications across the network. Wireless will include mobility between lightweight access points. Troubleshooting will be emphasized. Prerequisite: 10-150-150.

10-150-170 CCNA1&2: Networking and Routing Basics 5 credits
Introduction to Networking basics and routing with a focus on network terminology, protocols, local area networks (LANs), Open System Interconnection (OSI) model, cabling, routers and router programming, Ethernet, Internet Protocol (IP) addressing, subnetting, Variable Length Subnet Masking (VLSM), Classless Inter-Domain Routing (CIDR) and network standards. The student will develop skills on configuring a router, using the Cisco IOS Software, and configuring routing using static routes and routing protocols, including RIP version 1 & 2, EIGRP, and single area OSPF. Involves extensive lab work using router, switches, and simulations. NOTE: Must take 10-150-172 CCNA3&4 within one year of completion of 10-150-170 CCNA1&2. Prerequisite: Working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management).

10-150-172 CCNA3&4: Switching & WAN Access 3 credits
A continuation of CCNA1&2, this course focuses on switching concepts and WAN access. Topics include Virtual LANs (VLANs), switch configuration, LAN and WAN network design, Rapid Spanning Tree Protocol, trunking, VLAN Trunking Protocol (VTP), access lists, Network Address Translation (NAT), DHCP, wide area networks (WANs), WAN connections (cable, DSL, Frame Relay, and leased lines), Quality of Service (QoS), VPN basics, and network monitoring. Prerequisites: 10-107-111 and 10-150-170 (must follow 10-150-170: CCNA1&2 within one year).

10-150-176 Intermediate Networking 3 credits
Students will install, configure, and secure access points and enable devices to associate to the WLAN. Students are introduced to computer network vulnerabilities and threats and learn to safeguard networks using current wireless technologies. Students will focus on the design, planning, implementation, operation, troubleshooting and securing of LANs and WLANs. Prerequisites: 10-150-160, 10-150-172, and 10-154-186.

10-150-194 Firewall/VPN Technologies 3 credits
Introduces the network security specialist to the various methodologies for defending a network. The student is introduced to the concepts, principles, types and topologies of firewalls to include packet filtering, proxy firewalls, application gateways, circuit gateways and stateful inspection. In this class, students learn the skills necessary for one of the CISCO Certified Security Professional (CCSP) certification exams. Prerequisite: 10-150-172.

10-150-195 Networking Internship 3 credits
An on-the-job experience, with instructor supervision, in Madison area networking companies and in companies that maintain and manage computer networks. The emphasis is on hands-on design, installation, configuration, management, documentation, troubleshooting and maintenance of LANs. Prerequisites: 10-107-175, 10-150-150, 10-150-162 and 10-150-194.

10-152-104 Windows PowerShell 3 credits
Windows PowerShell is used in the Microsoft world for administration and management of Windows Clients. This class will introduce IT students to PowerShell and how it is used for administering Microsoft Networks. Students will develop a sound understanding of administering Window's environments using PowerShell and developing scripts using basic programming logic. Prerequisite: 10-154-184.

10-154-122 IT Service Concepts 3 credits
Introduces the "value added" customer service roles and responsibilities of an IT professional; the components of a successful IT support infrastructure, customer service as the bottom line for IT operations, the evolution of IT support, industry trends, teamwork, IT professional work habits. Explores listening, written and verbal communications skills and critical thinking skills to resolve incidents. Examines how to identify and defuse challenging customer behavior, solve and prevent problems, and the importance of documentation. Course addresses awareness of best practices of the ITIL framework.

10-154-184 Windows Client 3 credits
Learn how to install, configure and administer a Windows desktop operating system. Work in a computer laboratory setting to develop the real-world expertise needed to set up and support the Windows desktop environment. As you progress through topics such as installing the operating system, configuring hardware devices and establishing network connectivity, you are also preparing for Microsoft Exam 70-620. As an added bonus you will learn the operation of VMWare Workstation. Prerequisite: Working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management).

10-154-186 Windows Network Infrastructure 3 credits
Gain the skills necessary for supporting and configure a Windows Network infrastructure including name resolution, file and print services, and remote access. Learn the practical skills required to troubleshoot and monitor network problems while preparing for Microsoft MCTS Exam 70-642. Prerequisites: Completion of 10-101-111, 10-154-184 and completion or concurrent enrollment in 10-150-101 or 10-150-170.

10-154-189 Computer Hardware Essentials 3 credits
This course presents a comprehensive overview of computer fundamentals and an introduction to operating systems. Students completing through hands-on activities and labs, this course will be able to work with internal components of a computer, assemble a computer system, work with the basics of an operating system and get exposure to computer tasks such as installation, configuration, diagnosing, preventive maintenance and basic networking and operating systems. CompTIA's A+ Certification is a widely accepted IT industry standard certification for PC technology. This course prepares students for CompTIA's A+ Essentials exam (CompTIA A+ exam 220-701). Prerequisite: Working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management).

10-154-190 Linux Server 3 credits
Introduces Linux with a focus on system administration skills. Topics include installation, file and directory management, command execution, input/output redirection and pipes, shell scripts, network services, security, troubleshooting and the X Window system. Prerequisite: 10-150-101 or 10-150-170.

Additional Required Program Courses

10-150-160 IT Security Awareness 1 credit

Career Potential:

Entry level positions can include:

- **Network Control Operator**
- **Network Support Technician**
- **Network Support Services**
- **Network Technician**
- **Network Specialist**
- **Network Professional**
- **Networking Services**
- **Assistant LAN Manager**
- **Assistant LAN Administrator**
- **Assistant Network Administrator**

With experience, networking specialist can find work as:

- **LAN Manager**
- **LAN Administrator**
- **Network Support Services Manager**
- **Network Engineer**
- **Network Administrator**
- **Web Designer**

Upper Management positions can include:

- **Networking Manager**
- **Manager of Voice/Data Networks**
- **Intranet (sic) Designer**
- **Data Communications Analyst**
- **Director of Networks**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Effective: 2010-2011

Information Technology—
PHP Professional Web Developer Certificate

Program Number: 90-152-8

Certificate

Information Technology Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Certificate

This certificate is designed to prepare information systems professionals to use the PHP programming language for web development. Classes include advanced web application features such as shopping carts, content management system using Drupal, web forums and connecting to web services. Three classes are used to teach students the necessary skills to make them successful in PHP web development.

Unique Requirements for Admission

1) Associate Degree in programming (e.g. IT Programmer/Analyst) OR 2 years experience in a programming language (e.g. COBOL, Visual Basic, etc.)

2) Experience using a relational database (e.g. Access, MySQL, SQL Server, Oracle)

3) Experience in basic web development using HTML.

Application

Apply directly to the Center. The completed application form should include verification of years of employment, if necessary. No application fee is required for the certificate.

Unique Requirements for Completion

The certificate will be awarded upon completion of the requirements with a minimum of a 2.0 grade average and no course grade lower than a C. Students are responsible for contacting the Center upon completion of the required classes. Certificate will be awarded after completion of all requirements is verified.

Curriculum

Courses		Credits	Hrs/week Lec-Lab
10-152-166	PHP Web Development with MySQL	3	2-2
10-152-167	PHP and MySQL Advanced Web Development*	3	2-2
10-152-169	Professional PHP Web Applications**	3	2-2
	Total	**9**	

Note: All Information Technology courses require a grade of C or better in order to receive the certificate.

**Offered Fall semester only*
***Offered Spring semester only*

Courses

10-152-166 PHP Web Development with MYSQL 3 credits
This course introduces the student to dynamic web page development using the PHP programming language. Students will learn how PHP works, how to effectively use many of its powerful features, and how to design and build their own PHP web applications. The popular MySQL open source database management software (DBMS) will also be introduced as a powerful backend for PHP websites.

10-152-167 PHP and MySQL Advanced Web Development 3 credits
This course prepares the student to implement professional PHP and MySQL web applications. Students will learn advanced techniques for session management, validation, and authentication. Advanced web application features such as shopping carts, content management using Drupal, web forums and connecting to web services are discussed. Installation and customization of open source PHP web applications is also covered. Prerequisite: Grade of C or better in 10-152-166.

10-152-169 Professional PHP Web Applications 3 credits
In this course students will implement a professional-grade PHP and MySQL web application. Students will practice advanced techniques for session management, validation, and authentication. Students will implement applications using frameworks, source code management software, and industry standard security practices. Prerequisite: Grade of C or better in 10-152-167.

Career Potential:

- **PHP Web Developer**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Information Technology—
Programmer / Analyst

Effective: 2010-2011

Program Number: 10-152-1

Associate in Applied Science Degree

Information Technology Program Cluster

Center for Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Program

This two-year program meets the specific skills and knowledge requirements of technical and professional jobs within the Information Technology field for an entry-level web programmer/analyst working in a small to medium size organization. Training blends general educational development with required IT technical skills. Additional education and job experience lead to work in website design and management.

Requirement for Admission

- High school diploma, HSED, or GED with a minimum grade point average of 2.0 or equivalent
- General knowledge of Microsoft Windows

Program Courses

10-107-111 Careers in IT 1 credit
Introduces students to the various careers available in the vast field of Information Technology and examines the Network Specialist, Programmer/Analyst, Web Programmer/Analyst, Computer Systems Administration Specialist, and Security Specialist career paths. Students create an individualized career path plan as the capstone project for the course. Prerequisite: Working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management).

10-107-175 Job Search Preparation 1 credit
Introduction to planning and organizing a job search in Information Technology. Activities include the development of a personalized job search plan, correspondence and portfolio. Prerequisites: Grade of C or better in 10-107-111 and students must have completed all IT courses in the first two semesters.

10-150-160 IT Security Awareness 3 credits
Provides a basic survey of the importance of IT security awareness and data confidentiality. This security awareness-training course walks users through every aspect of Information Security in a very broad, easy to understand way and explains to them the value of securing data, for both themselves and the organization. The class will introduce legislation, local, state and federal privacy policies and liability of individuals and institutions related to data confidentiality and integrity. The course will introduce risk management, security policies, and common threats and countermeasures. The course will also present best practices in access control and password policies.

10-152-101 Introduction to Visual Basic.Net Programming 3 credits
Teaches the basic concepts of VB.NET programming. Topics include Visual Studio Integrated Development Environment, program logic constructs, event-driven programming techniques and development in an object-oriented context. Prerequisites: 10-107-111 and 10-152-119.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			**Hrs/week**
First Semester		**Credits**	**Lec-Lab**
10-107-111	Careers in IT	1	1-0
10-150-160	IT Security Awareness	1	1-0
10-152-119	Introduction to Programming with JavaScript	3	2-2
10-152-120	Website Development-XHTML	3	2-2
10-152-124	Introduction to Database	3	2-2
10-801-195	Written Communication	3	3-0
10-804-144	Math of Finance	3	3-0
	Semester Total	**17**	
Second Semester			
10-152-125	SQL Database Programming	3	2-2
10-152-130	Object-Oriented Design with UML	3	2-2
10-152-166	PHP Web Development with MySQL **OR**	3	2-2
10-152-101	Intro to Visual Basic.NET Programming	(3)	(2-2)
10-154-189	Computer Hardware Essentials	3	2-2
10-801-196	Oral/Interpersonal Communication	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Semester Total	**18**	
SECOND YEAR			
First Semester			
10-107-175	Job Search Preparation	1	1-0
10-152-121	Advanced Website Development-XML	3	2-2
10-152-131	Object-Oriented Systems Analysis*	3	2-2
10-152-167	PHP & MySQL Advanced Web Development* **OR**	3	2-2
10-152-102	Advanced Visual Basic.NET*	(3)	(2-2)
10-809-195	Technical Reporting	3	2-2
10-809-197	Contemporary American Society	3	3-0
	Semester Total	**16**	
Second Semester			
10-152-168	AJAX and JavaScript Web Development**	3	2-2
10-152-174	IT Programmer/Analyst Internship**	3	2-2
10-152-169	Professional PHP Web Applications** **OR**	3	2-2
10-152-103	Web Application Develop. Using ASP.NET**	(3)	(2-2)
10-809-166	Introduction to Ethics: Theory and Application	3	2-2
	Elective	6	E
	Semester Total	**18**	

Graduation Requirement
All Prerequisite courses require the grade of C or better in prerequisite in Information Technology (150-, 152-, 154-, 107-) course(s). All Information Technology courses require a grade of C or better in order to graduate

Note: Students are assessed for correct placement in English or mathematics courses based on their scores on the COMPASS test or on completion of the appropriate prerequisite/s. Additionally, there may be courses in other subject areas that may use COMPASS scores as prerequisites when reading, writing, math, or critical thinking competencies are required.

Recommended Electives
Electives must be associate degree (100 level) or college transfer (200 level) courses.

10-152-111	Introduction to Java Programming	3
10-152-141	C# Programming in Visual Studio.NET**	3
10-152-143	iPhone Applications Development*	3
10-152-153	Advanced iPhone Applications Development**	3
10-152-157	Ruby on Rails Development**	3
10-154-190	Linux Server	3

*Offered fall semester only
**Offered spring semester only

MADISON AREA TECHNICAL COLLEGE

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Program Courses (continued)

10-152-102 Advanced Visual Basic.NET 3 credits
This course provides students with a comprehensive understanding of object-oriented system development. It examines and uses the prewritten .NET Framework classes and explores the MSDN help facility. Topics include: collections, exception handling, interfaces and advanced development techniques such as XML and database programming using ADO.NET. Prerequisites: 10-152-101 and 10-152-124.

10-152-103 Web Application Development Using ASP.NET 3 credits
Students learn to develop Microsoft ASP.NET applications that deliver dynamic content to the web. An emphasis is placed on server-side programming and the role of ASP.NET plays. As part of the class, students create web forms with server controls, display dynamic data from a database using Microsoft ADO.NET, read XML configuration files, and learn to debug ASP.NET web pages. Prerequisites 10-152-102 and 10-152-120.

10-152-119 Introduction to Programming with JavaScript 3 credits
Teaches the basic concepts of programming using the JavaScript language. Topics include: embedding JavaScript in HTML, event-driven programming techniques, program control logic, and an introduction to object-oriented programming. Prerequisite: Concurrent enrollment in 10-152-120.

10-152-120 Website Development-XHTML 3 credits
Teaches the fundamentals and techniques of developing business websites using XHTML-compliant HTML. Topics include webpage design, tables, image manipulation, image maps, forms, cascading style sheets (CSS) and an introduction to JavaScript. All work is done directly with XHTML. Prerequisite: working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management).

10-152-121 Advanced Website Development-XML 3 credits
Provides the student with experience in the design and implementation of business Internet Websites using advanced command syntax. Topics include: JavaScript, browser object models, dynamic HTML, advanced cascading style sheets (CSS), XML, document type definitions, extensible stylesheet language transformations (XSLT), and XML schemas. Prerequisite: 10-152-120.

10-152-124 Introduction to Database 3 credits
Introduces the student to relational database concepts using the MS Access database environment. Students learn to use various software tools to use queries, forms and reports in developing comprehensive business applications using MS/Access. Prerequisite: Working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management).

10-152-125 SQL Database Programming 3 credits
Presents relational database concepts and teaches beginning to intermediate Structured Query Language (SQL) using an Oracle database. Students learn to create and maintain database objects and to store, retrieve, and manipulate data. Demonstrations and hands-on practice reinforce the fundamental concepts. Prerequisites: 10-152-124 and completion of or concurrent enrollment in 10-152-130.

10-152-130 Object-Oriented Design with UML 3 credits
Practical, introductory-level systems analysis experience. Emphasis is on the physical system elements: data design (record, file, database and entity-relationship diagrams), object-oriented design (use case, class and sequence diagrams), user interface design (screen and report) and system interface design (platforms and factoring). The use of CASE tools is integrated throughout the course. Prerequisites: 10-152-119 and 10-152-124.

10-152-131 Object-Oriented Systems Analysis 3 credits
Introduction to the methodologies of systems analysis and design. Emphasizes developing interviewing skills, identifying organizational problems and objectives, analyzing and documenting systems, physical modeling and design. Students gain experience in the creation of UML diagrams, a project repository, entity-relationship diagrams, database design, data normalization and data flow modeling. Focuses on problem solving skills, business-client relations, project analysis, team dynamics and communication skills. Prerequisite: 10-152-130.

10-152-166 PHP Web Development with MySQL 3 credits
This course introduces the student to dynamic web page development using the PHP programming language. Students will learn how PHP works, how to effectively use many of its powerful features, and how to design and build their own PHP web applications. The popular MySQL open source database management software (DBMS) will also be introduced as a powerful backend for PHP websites. Prerequisites: 10-152-119 and 10-152-120.

10-152-167 PHP and MySQL Advanced Web Development 3 credits
This course prepares the student to implement professional PHP and MySQL web applications. Students will learn advanced techniques for session management, validation, and authentication. Advanced web application features such as shopping carts, content management using Drupal, web forums and connecting to web services are discussed. Installation and customization of open source PHP web applications is also covered. Prerequisites: 10-152-125 and 10-152-166.

10-152-168 AJAX and JavaScript Web Development 3 credits
AJAX turns static web pages into interactive applications, allowing you to deploy rich-client applications. Course covers the basics of DHTML, JavaScript, and the XmlHttpRequest call. Students learn how to add JavaScript and AJAX to existing programs, and design new applications to exploit the power of Web 2.0. Students learn the three layers of AJAX framework, and when (and how) to use each. Students learn how to create rich clients, use visual effects, add client-side validation, and handle forms. Prerequisites: 10-152-121 and one of the following: 10-152-102, 10-152-112 or 10-152-167.

10-152-169 Professional PHP Web Applications 3 credits
In this course students will implement a professional-grade PHP and MySQL web application. Students will practice advanced techniques for session management, validation, and authentication. Students will implement applications using frameworks, source code management software, and industry standard security practices. Prerequisite: 10-152-167.

10-152-174 IT Programmer/Analyst Internship 3 credits
Opportunities for students to learn and practice programming and analysis techniques through activities and experiences in a group project at Madison College, or in an actual information systems department. Objectives commensurate with student's background and experience. Activities include designing and testing new programs, designing and modifying existing programs, systems analysis and design, and sharing experiences with other interns. Prerequisites: 10-107-175, 10-152-121, 10-152-131 and one of the following: 10-152-102 or 10-152-167.

10-154-189 Computer Hardware Essentials 3 credits
This course presents a comprehensive overview of computer fundamentals and an introduction to operating systems. Students completing through hands-on activities and labs, this course will be able to work with internal components of a computer, assemble a computer system, work with the basics of an operating system and get exposure to computer tasks such as installation, configuration, diagnosing, preventive maintenance and basic networking and operating systems. CompTIA's A+ Certification is a widely accepted IT industry standard certification for PC technology. This course prepares students for CompTIA's A+ Essentials exam (CompTIA A+ exam 220-701). Prerequisite: Working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management).

Career Potential:

- **Web Application Developer**
- **Programmer/Analyst**

With additional education and/or work experience, graduates may find employment as:

- **Systems Analyst**
- **Systems Programmer**
- **Database Programmer**
- **Database Administrator**
- **Project Manager**
- **Information Systems Department Manager**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/10

Madison Area Technical College

Information Technology—
Web Analyst / Programmer

Effective: 2010-2011

Program Number: 10-152-4

Associate in Applied Science Degree

Information Technology Program Cluster

Center for Agriscience & Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or (800) 322-6282 Ext. 6800

About the Program

The Web Analyst/Programmer program meets the specific skills and knowledge requirements of technical and professional jobs within the Information Technology field for an entry-level web analyst/programmer. It is designed to meet entry-level educational needs of most segments of the IT field which utilize a variety of computers. Training blends general educational development and required IT technical skills. Graduates are prepared for entry-level web developer jobs in government, insurance, manufacturing, service, software development, wholesale and retail sales, utilities, banking and accounting.

Requirements for Admission

High school diploma, HSED, or GED with a minimum grade point average of 2.0 or equivalent and General knowledge of Microsoft Windows

Program Courses

10-107-111 Careers in IT 1 credit
Introduces students to the various careers available in the vast field of Information Technology and examines the Network Specialist, Programmer/Analyst, Web Programmer/Analyst, Computer Systems Administration Specialist and Security Specialist career paths. Students create an individualized career path plan as the capstone project for the course. Prerequisite: Working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management).

10-107-175 Job Search Preparation 1 credit
Introduction to planning and organizing a job search in Information Technology. Activities include the development of a personalized job search plan, correspondence and portfolio. Prerequisite: IT students must have completed all IT courses in the first two semesters of the program in order to enroll in this course.

10-150-160 IT Security Awareness 1 credit
Provides a basic survey of the importance of IT security awareness and data confidentiality. This security awareness-training course walks users through every aspect of Information Security in a very broad, easy to understand way and explains to them the value of securing data, for both themselves and the organization. The class will introduce legislation, local, state and federal privacy policies and liability of individuals and institutions related to data confidentiality and integrity. The course will introduce risk management, security policies, and common threats and countermeasures. The course will also present best practices in access control and password policies.

10-152-101 Introduction to Visual Basic.NET Programming 3 credits
Teaches the basic concepts of VB.NET programming. Topics include the Visual Studio Integrated Development Environment, program logic constructs, event-driven programming techniques, and development in an object-oriented context. Prerequisite: 10-107-111 and 10-152-119.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-107-111	Careers in IT	1	1-0
10-150-160	IT Security Awareness	1	1-0
10-152-119	Introduction to Programming with JavaScript	3	2-2
10-152-120	Website Development-XHTML	3	2-2
10-152-124	Introduction to Database	3	2-2
10-801-195	Written Communication	3	3-0
10-804-144	Math of Finance	3	3-0
	Semester Total	**17**	
Second Semester			
10-152-101	Introduction to Visual Basic.NET Programming **OR**	3	2-2
10-152-111	Introduction to Java Programming	(3)	(2-2)
10-152-125	SQL Database Programming	3	2-2
10-152-130	Object-Oriented Design with UML	3	2-2
10-801-196	Oral/Interpersonal Communication	3	3-0
10-809-197	Contemporary American Society	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Semester Total	**18**	

SECOND YEAR			
First Semester			
10-107-175	Job Search Preparation	1	1-0
10-152-102	Advanced Visual Basic.NET* **OR**	3	2-2
10-152-112	Advanced Java Programming*	(3)	(2-2)
10-152-121	Advanced Website Development	3	2-2
10-152-131	Object-Oriented Systems Analysis*	3	2-2
10-801-197	Technical Reporting	3	3-0
	Elective	3	E
	Semester Total	**16**	
Second Semester			
10-152-103	Web Application Development Using ASP.NET** **OR**	3	2-2
10-152-113	Enterprise Java Programming**	(3)	(2-2)
10-152-126	Database Design and Data Warehousing**	3	2-2
10-152-132	Web Analyst/Programmer Internship**	3	2-2
10-152-168	AJAX and JavaScript Web Development	3	2-2
10-809-166	Introduction to Ethics: Theory and Application	3	3-0
	Elective	3	E
	Semester Total	**18**	

Note: All Information Technology courses require a grade of C or better in order to graduate.

Note: Students are assessed for correct placement in English or mathematics courses based on their scores on the COMPASS test or on completion of the appropriate prerequisite(s). Additionally, there may be courses in other subject areas that may use COMPASS scores as prerequisites when reading, writing, math, or critical thinking competencies are required.

Recommended Electives

Electives must be associate degree (100 level) or college transfer (200-level) courses.

10-101-111	Accounting 1-Principles	4 credits
10-150-170	CCNA1&2: Networking and Routing Basics	5 credits
10-152-141	C# Programming in Visual Studio.NET**	3 credits
10-152-143	iPhone Applications Development*	3 credits
10-152-153	Advanced iPhone Applications Development**	3 credits
10-152-157	Ruby on Rails Development**	3 credits
10-152-166	PHP Web Development with MySQL	3 credits

*Offered fall semester only **Offered spring semester only

MADISON AREA TECHNICAL COLLEGE

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Program Courses (continued)

10-152-102 Advanced Visual Basic.NET 3 credits
The course provides students with a comprehensive understanding of object-oriented system development. It examines and uses the prewritten .NET Framework classes and explores the MSDN help facility. Topics include: collections, exception handling, interfaces and advanced development techniques such as XML and database programming using ADO.NET. Prerequisites: 10-152-101 and 10-152-124.

10-152-103 Web Application Development Using ASP.NET 3 credits
Students learn to develop Microsoft ASP.NET applications that deliver dynamic content to the web. An emphasis is placed on server-side programming and the role of ASP.NET plays. As part of the class, students create web forms with server controls, display dynamic data from a database using Microsoft ADO.NET, read XML configuration files and learn to debug ASP.NET web pages. Prerequisites: 10-152-102 and 10-152-120.

10-152-111 Introduction to Java Programming 3 credits
Introduces programming and object-oriented design concepts using the Java programming language. Students learn all the Java programming basics and use a simple text editor as a development environment. Design concepts and programming tools will be integrated with an emphasis on practical business solutions. Prerequisites: 10-107-111 and 10-152-119.

10-152-112 Advanced Java Programming 3 credits
Focuses on the server side of application programming for the web. Topics include: Java servlets, database access with JDBC, JavaServer Pages and JavaBeans. A portion of the class deals with application design issues in a web environment. Prerequisites: 10-152-111 and 10-152-125.

10-152-113 Enterprise Java Programming 3 credits
The third class of the Java sequence explores advanced Java topics within the J2EE application framework. Topics include JDBC, Enterprise JavaBeans, Servlets, JSPs, XML, JMS, JNDI, Web Services, custom tag libraries, web applications and enterprise applications. Prerequisites: 10-152-112 and 10-152-121.

10-152-119 Introduction to Programming with JavaScript 3 credits
Teaches the basic concepts of programming using the JavaScript language. Topics include: embedding JavaScript in HTML, event-driven programming techniques, program control logic, and an introduction to object-oriented programming. Prerequisite: concurrent enrollment in 10-152-120.

10-152-120 Website Development-XHTML 3 credits
Teaches the fundamentals and techniques of developing business websites using XHTML-compliant HTML. Topics include webpage design, tables, image manipulation, image maps, forms, tags, cascading style sheets (CSS) and an introduction to JavaScript. All work is done directly with XHTML. Prerequisite: Working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management).

10-152-121 Advanced Website Development-XML 3 credits
Provides the student with experience in the design and implementation of business internet websites using advanced command syntax. Topics include: JavaScript, browser object models, dynamic HTML, advanced cascading style sheets (CSS), XML, document type definitions, extensible stylesheet language transformations (XSLT), and XML schemas. Prerequisite: 10-152-120.

10-152-124 Introduction to Database 3 credits
Introduces the student to relational database concepts using the MS Access database environment. Students learn to use various software tools to use queries, forms and reports in developing comprehensive business applications using MS/Access. Prerequisite: Working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management).

10-152-125 SQL Database Programming 3 credits
Presents relational database concepts and teaches beginning to intermediate Structured Query Language (SQL) using an Oracle database. Students learn to create and maintain database objects and to store, retrieve, and manipulate data. Demonstrations and hands-on practice reinforce the fundamental concepts. Prerequisites: 10-152-124 and completion of or concurrent enrollment in 10-152-130.

10-152-126 Database Design and Data Warehousing 3 credits
Study of the construction of relational databases. Activities include: designing a database using the relational database model, implementing a database in normal form and demonstrating a functional database in terms of performance, integrity and security. Prerequisites: 10-152-125, 10-152-131.

10-152-130 Object-Oriented Design w/UML 3 credits
Practical, introductory-level systems analysis experience. Emphasis is on the physical system elements: data design (record, file, database and entity-relationship diagrams), object-oriented design (use case, class and sequence diagrams), user interface design (screen and report) and system interface design (platforms and factoring). The use of CASE tools is integrated throughout the course. Prerequisites: 10-152-119 and 10-152-124.

10-152-131 Object-Oriented Systems Analysis 3 credits
Introduction to the methodologies of systems analysis and design. Emphasizes developing interviewing skills, identifying organizational problems and objectives, analyzing and documenting systems, physical modeling and design. Students gain experience in the creation of UML diagrams, a project repository, entity-relationship diagrams, database design, data normalization and data flow modeling. Focuses on problem solving skills, business-client relations, project analysis, team dynamics and communication skills. Prerequisite: 10-152-130.

10-152-132 Web Analyst/Programmer Internship 3 credits
Opportunities for students to learn and practice web programming and analysis techniques through activities and experiences in an actual information systems department. Students will seek internship opportunities and interview to be selected for internships. The student spends approximately 216 hours over the course of the semester at the internship site. If no internship is available, a special project may be substituted for the internship by consent of the instructor. Activities include designing and testing new web programs, designing and modifying existing web programs, object oriented systems analysis and design, and sharing experiences with other interns. Prerequisites: 10-107-175, 10-152-121 and 10-152-131 and one of the following: 10-152-102 or 10-152-112.

10-152-168 AJAX and JavaScript Web Development 3 credits
AJAX turns static web pages into interactive applications, allowing you to deploy rich-client applications. Course covers the basics of DHTML, JavaScript, and the XmlHttpRequest call. Students learn how to add JavaScript and AJAX to existing programs, and design new applications to exploit the power of Web 2.0. Students learn the three layers of AJAX framework, and when (and how) to use each. Students learn how to create rich clients, use visual effects, add client-side validation, and handle forms. Prerequisites: grade of C or better in 10-152-121 and one of the following: 10-152-102, 10-152-112 or 10-152-167.

Career Potential:

- **Web Developer**

With additional education and/or work experience, graduates may find employment as:

- **Web Designer**
- **Web Architect**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/10

Liberal Arts Transfer

Program Numbers: Arts - 20-800-1A
Science – 20-800-1S

Center for Arts and Sciences

Courses offered at Madison, Fort Atkinson, Portage, Reedsburg, and Watertown Campuses

For information call: (608) 246-6246 or (800) 322-6282 Ext. 6246

Mission Statement

The Liberal Arts Transfer program serves students who wish to earn an Associate in Arts (AA) or Associate in Science (AS) degree and/or who intend to transfer to a four-year university. The program provides students with an excellent foundation for continuing in higher education.

By completing the AA or AS degree at Madison College, students will generally satisfy the first two years of general education requirements for four-year colleges and universities and obtain an educational foundation in English, humanities, mathematics, natural sciences, social and behavioral sciences, and world languages. Students who have a particular four-year institution in mind should verify the transferability of their courses to that school to satisfy requirements for the major and for graduation.

The Liberal Arts Transfer program provides courses in:

- Art
- English
- History
- Mathematics
- Music
- Natural Science
- Physical Education
- Social and Behavioral Science
- Speech and Performing Arts
- World Languages

Associate in Arts Degree

64 credits

Minimum Requirements — **Credits**

English and Speech **9**
Six credits must be in composition - English 1 and one other composition course (English 2 recommended) - and three credits must be in speech.

Health/Wellness/Physical Education **1**

Humanities/Fine Arts **15**
Courses must be from at least three disciplines; one course in literature is required. Select from anthropology (selected courses), art appreciation/history, creative writing, drama, film, history (selected courses), literature, mass communication, music history or theory, philosophy, and world language. A maximum of three credits of studio/hands-on courses in art, creative writing, drama, and music may be applied. (For complete listing, go to Liberal Arts Transfer Program on the Madison College website – matcmadison.edu)

Mathematics and Natural Science **11**
Intermediate Algebra meets the minimum requirement in mathematics. Select one biological science and one physical science; one of the science courses must include a laboratory.

Social Science **15**
Select from at least three disciplines: anthropology, economics, government, history, philosophy, psychology, and sociology.

Electives **13**
Select college transfer courses beyond the minimum requirements. One credit of health and physical education beyond the Health/Wellness/Physical Education credit may be selected. A maximum of six credits from a two-year occupational/applied associate degree program may be used.

Ethnic Studies
One course required. Course may also count toward Humanities/Fine Arts, Social Science, or Electives.

World Language
May be met with one year in high school with a grade of 'C' or better OR one semester in college. College course may also count toward Humanities/Fine Arts or Electives.

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Associate in Science Degree

64 credits

Minimum Requirements — **Credits**

English and Speech **9**
Six credits must be in composition - English 1 and one other composition course (English 2 recommended) - and three credits must be in speech.

Health/Wellness/Physical Education **1**

Humanities/Fine Arts **9**
Courses must be from at least two disciplines; one course in literature is required. Select from anthropology (selected courses), art appreciation/history, creative writing, drama, film, history (selected courses), literature, mass communication, music history or theory, philosophy, and world language. A maximum of three credits of studio/hands-on courses in art, creative writing, drama, and music may be applied. (For complete listing, go to Liberal Arts Transfer Program on the Madison College website – matcmadison.edu)

Mathematics and Natural Science **20**
Calculus and Analytic Geometry 1 must be completed. Select one biological science and one physical science; both of the science courses must include a laboratory.

Social Science **9**
Select from at least two disciplines: anthropology, economics, government, history, philosophy, psychology, and sociology.

Electives **16**
Select college transfer courses beyond the minimum requirements. One credit of health and physical education beyond the Health/Wellness/Physical Education credit may be selected. A maximum of six credits from a two-year occupational/applied associate degree program may be used.

Ethnic Studies
One course required. Course may also count toward Humanities/Fine Arts, Social Science, or Electives.

World Language
May be met with one year in high school with a grade of 'C' or better OR one semester in college. College course may also count toward Humanities/Fine Arts or Electives.

Courses

		Credits	Hrs/week Lec-Lab
801 English			
20-801-201	English 1	3	3-0
20-801-202	English 2	3	3-0
20-801-203	Advanced Composition	3	3-0
20-801-204	Introduction to Literature	3	3-0
20-801-210	American Short Story	3	3-0
20-801-211	Gay and Lesbian Literature	3	3-0
20-801-212	Special Topics in Ethnic Literature.	3	3-0
20-801-213	Native American Literature	3	3-0
20-801-214	African American Literature	3	3-0
20-801-215	British Literature 1	3	3-0
20-801-216	British Literature 2	3	3-0
20-801-217	American Literature 1	3	3-0
20-801-218	American Literature 2	3	3-0
20-801-219	Western World Literature 1	3	3-0
20-801-220	Western World Literature 2	3	3-0
20-801-221	Literature and Popular Culture	3	3-0
20-801-222	U.S. Latino Literature	3	3-0
20-801-223	Peace, Conflict, and Literature: The Arts of the Contact Zone	3	3-0
20-801-224	Special Topics in International Literature	3	3-0
20-801-228	Literature in the Wild	3	2-2
20-801-229	Contemporary Literature	3	3-0
20-801-230	Classical Mythology	3	3-0
20-801-240	Creative Writing	3	3-0
20-801-241	Creative Writing/Fiction	3	3-0
20-801-242	Creative Writing/Drama	3	3-0
20-801-243	Creative Writing/Poetry	3	3-0
20-801-244	Creative Writing/Nonfiction	3	3-0
20-801-245	Newswriting and Reporting	4	6-0
20-801-246	Feature Writing	4	4-0
20-801-247	Internship/Professional Writing 2	1-0	
20-801-250	Women in Literature	3	3-0
20-801-251	Intro to Mass Communications	4	4-0
20-801-252	World Issues Journalism	4	4-0
20-801-253	Documentary Storytelling	3	3-0
20-801-270	Peer Tutoring Practicum	3	3-0
802 World Languages			
20-802-200	Spanish 1 (1st Semester)	3	4-0
20-802-201	Spanish 1 (2nd Semester)	3	4-0
20-802-211	Spanish 1 or Spanish 1 (Refresh)	4	5-0
20-802-212	Spanish 2	4	5-0
20-802-213	Spanish 3	4	4-0
20-802-214	Spanish 4	4	4-0
20-802-215	Spanish 5	3	3-0
20-802-221	French 1	4	5-0
20-802-222	French 2	4	5-0
20-802-223	French 3	4	4-0
20-802-224	French 4	4	4-0
20-802-225	Study Tour in France	2	2-0
20-802-230	Intro to Mandarin Chinese 1	3	3-0
20-802-231	Intro to Mandarin Chinese 2	3	3-0
20-802-240	Intro to Modern Arabic 1	3	3-0
20-804-241	Intro to Modern Arabic 2	3	3-0
803 History			
20-803-204	Making of Modern Europe	3	3-0
20-803-205	Europe and the Modern World	3	3-0
20-803-211	American History 1607-1865	3	3-0
20-803-212	American History 1865 to the Present	3	3-0
20-803-213	History of the American West	3	3-0
20-803-214	Native American History	3	3-0
20-803-215	American History 1945 to the Present	3	3-0
20-803-220	History of Western Civilization 1	3	3-0
20-803-221	History of Western Civilization 2	3	3-0
20-803-224	History of the Sub-Saharan Africa	3	3-0
20-803-225	The World in the Twentieth Century	3	3-0

		Credits	Hrs/week Lec-Lab
803 History (Continued)			
20-803-226	East Asian Civilization	3	3-0
20-803-229	Vietnam and America:1945-Present	3	3-0
20-803-230	Women in History	3	3-0
20-803-232	History Study Tour in France	2	2-0
20-803-238	Intro to North American Latino/ Chicano Histories	3	3-0
20-803-240	African-American History	3	3-0
804 Mathematics			
20-804-200	Principles of Geometry	3	5-0
20-804-201	Intermediate Algebra	4	3-2
20-804-202	Intermediate Algebra 1	3	2-2
20-804-203	Intermediate Algebra 2	3	2-2
20-804-206	Introduction to Computer Use	4	3-2
20-804-207	Introduction to Computer Programming	2	2-2
20-804-208	Computer Science	4	3-2
20-804-210	Math for Elementary Teachers	3	3-0
20-804-211	Quantitative Reasoning	3	2-2
20-804-212	College Algebra	3	2-2
20-804-213	Trigonometry	3	2-2
20-804-220	Finite Mathematics	3	2-2
20-804-221	Calculus Methods for Business and Social Sciences 1	5	5-0
20-804-229	Mathematical Analysis	5	5-0
20-804-231	Calculus and Analytic Geometry 1	5	5-0
20-804-232	Calculus and Analytic Geometry 2	5	5-0
20-804-233	Calculus 3	5	5-0
20-804-240	Basic Statistics	4	3-2
20-804-241	Intro to Engineering Statistics	3	3-2
20-804-255	Techniques in Ordinary Differential Equations	3	3-0
805 Music			
20-805-204	Music Ensemble	1	2-0
20-805-205	Class Voice 1: Strategies for Enhancing Your Singing	1	1-0
20-805-206	Class Voice 2	1	1-0
20-805-207	Introduction to World Music	3	3-0
20-805-209	Vocal Jazz Ensemble	1	2-0
20-805-227	Music Appreciation	3	3-0
20-805-260	Basic Music Theory	3	3-0
20-805-261	Music Theory 1	3	3-0
20-805-262	Music Theory 2	3	3-0
20-805-263	Jazz History	3	3-0
20-805-264	Great Composers in Music	3	3-0
20-805-267	Ear Training, Keyboard and Listening Skills	1	2-0
20-805-268	Ear Training, Keyboard and Listening Skills 2	1	2-0
20-805-270	Madison College Chorale	1	2-0
20-805-271	Madison College Chorale 2	1	2-0
20-805-272	Madrigal Choir	1	2-0
20-805-278	History of Pop and Rock Music	3	3-0
20-805-279	Afro-Caribbean Ensemble	1	0-2
20-805-280	Afro-Caribbean Ensemble 2	1	0-2
806 Natural Science			
20-806-200	Liberal Arts Chemistry	5	4-2
20-806-201	General, Organic and Biological Chemistry	5	4-2
20-806-203	Introduction to Zoology	5	3-4
20-806-206	General Anatomy and Physiology	4	3-2
20-806-207	Anatomy and Physiology 1	4	3-2
20-806-208	Anatomy and Physiology 2	4	3-2
20-806-209	College Chemistry 1	5	4-3
20-806-212	College Chemistry 2	5	4-3
20-806-213	Organic Chemistry 1	5	4-3
20-806-214	Organic Chemistry 2	5	4-3
20-806-215	Botany	5	3-4

Courses

		Credits	Hrs/week Lec-Lab
806 Natural Science (continued)			
20-806-221	University Physics 1	5	4-3
20-806-222	University Physics 2	5	4-3
20-806-223	College Physics 1–Calculus Based	5	5-3
20-806-224	College Physics 2–Calculus Based	5	5-3
20-806-226	Introduction to Human Biology	5	4-2
20-806-227	Genetics and Biotechnology	5	4-2
20-806-231	Biology of Human Aging	4	4-0
20-806-241	Earth Science	3	3-0
20-806-243	Survey of Astronomy	4	4-0
20-806-244	General Geology	4	3-2
20-806-245	Weather and Climate	3	3-0
20-806-265	Survey of Biochemistry	4	4-0
20-806-273	Microbiology	4	3-2
20-806-274	General Microbiology	5	3-4
20-806-275	Parasitology and Mycology	2	1-2
20-806-280	Environmental Issues	4	4-0
20-806-281	Ecology and Conservation Biology	3	3-0
20-806-282	Principles of Ecology	4	3-3
20-806-283	Insects and Human Culture	3	3-0
20-806-284	Field Ecology Workshop	3	3-0
20-806-285	Bringing Sciences to the Twenty-first Century	3	3-0
20-806-286	Environmental Science	4	4-3
807 Physical Education			
20-807-205	Distance Running for Fitness	1	2-0
20-807-207	Beginning Triathlon	1	2-0
20-807-209	Baseball Conditioning	1	2-0
20-807-210	Conditioning/Weight Training	1	2-0
20-807-212	Advanced Weight Training	1	2-0
20-807-221	Basketball Conditioning	1	2-0
20-807-223	Beginning Volleyball	1	2-0
20-807-224	Intermediate Volleyball	1	2-0
20-807-228	Water Safety Instructor	1	2-0
20-807-229	Swimming for Fitness	1	2-0
20-807-230	Beginning Swimming	1	2-0
20-807-231	Intermediate Swimming	1	2-0
20-807-232	Water Aerobics	1	2-0
20-807-233	Lifeguard Training	2	2-0
20-807-234	Scuba Diving	1	2-0
20-807-236	Beginning Tennis	1	2-0
20-807-238	Beginning Racquetball	1	2-0
20-807-239	Intermediate Racquetball	1	2-0
20-807-240	Beginning Golf	1	2-0
20-807-241	Intermediate Golf	1	2-0
20-807-245	Social Dance	1	2-0
20-807-246	Modern Dance 1	1	2-0
20-807-247	Jazz 1	1	2-0
20-807-248	Ballet	1	2-0
20-807-249	Tap Dance	1	2-0
20-807-250	Badminton	1	2-0
20-807-251	Jazz 2	1	2-0
20-807-253	Archery	1	2-0
20-807-254	Yoga	1	2-0
20-807-255	Prevention and Care of Athletic Injuries	2	2-0
20-807-260	Martial Arts Fundamentals	1	2-0
20-807-264	Intermediate Yoga	1	2-0
20-807-266	Wellness Today	2	3-0
20-807-271	Bicycle Conditioning	1	2-0
20-807-282	Step Aerobics	1	2-0
20-807-283	Aerobic Dance	1	2-0
20-807-289	Aerobics and Weight Training	1	2-0

		Credits	Hrs/week Lec-Lab
809 Social and Behavioral Science			
20-809-201	Human Sexuality	3	3-0
20-809-202	Social Problems	3	3-0
20-809-203	Introduction to Sociology	3	3-0
20-809-204	Marriage and the Family	3	3-0
20-809-205	Contemporary Society	3	3-0
20-809-206	Women in Society: Social Institutions and Social Change	3	3-0
20-809-207	Criminology	3	3-0
20-809-210	Men: Social and Psychological Perspectives	3	3-0
20-809-211	Macroeconomics	3	3-0
20-809-212	Microeconomics	3	3-0
20-809-214	Introduction to International Economics	3	3-0
20-809-215	Education in a Pluralistic Society	3	3-0
20-809-217	Race, Class, Gender	3	3-0
20-809-218	Law and Society	3	3-0
20-809-220	American Foreign Policy	3	3-0
20-809-221	American National Government	3	3-0
20-809-222	State and Local Government	3	3-0
20-809-223	International Relations	3	3-0
20-809-224	Government Practicum	3	0-8
20-809-225	Social Psychology	3	3-0
20-809-227	Political Theory	3	3-0
20-809-228	Environmental Economics	3	3-0
20-809-229	Social Movements	3	3-0
20-809-231	Introduction to Psychology	3	3-0
20-809-233	Developmental Psychology	3	3-0
20-809-235	Psychology of Personal Adjustment	3	3-0
20-809-236	Applied Psychology	3	3-0
20-809-237	Abnormal Psychology	3	3-0
20-809-238	Introduction to Health Psychology	3	3-0
20-809-239	Human Development in Infancy and Childhood	3	3-0
20-809-240	Introduction to Latin America	3	3-0
20-809-242	Introduction to Public Policy	3	3-0
20-809-243	Introduction to Comparative Politics	3	3-0
20-809-244	Russian Politics: An Introduction to Political Area Studies	3	3-0
20-809-245	Latin American Politics: An Introduction to Political Area Studies	3	3-0
20-809-246	Introduction to African Politics	3	3-0
20-809-247	Introduction to East Asian Politics	3	3-0
20-809-260	Introduction to Philosophy	3	3-0
20-809-261	Logic and Critical Thinking	3	3-0
20-809-262	Ethics: Theory and Application	3	3-0
20-809-263	East/West Worldviews	3	3-0
20-809-264	Reason in Communication	3	3-0
20-809-266	Ethics in Medicine	3	3-0
20-809-267	Leadership as an Art	3	3-0
20-809-268	Social Ethics	3	3-0
20-809-269	Energy and Society	3	3-0
20-809-271	Families in Transition	3	3-0
20-809-273	Aging and Social Problems	3	3-0
20-809-274	Leadership Ethics	3	3-0
20-809-276	Business Ethics	3	3-0
20-809-277	Couple Relationships	1	1-0
20-809-278	Introduction to Buddhism	3	3-0
20-809-280	General Anthropology	3	3-0
20-809-281	Archaeology and the Prehistoric World	3	3-0
20-809-283	Cultural Anthropology and Human Diversity	3	3-0
20-809-284	The Anthropology of Race, Ethnicity and Nationhood	3	3-0
20-809-285	The Anthropology of Myth, Magic and Religion	3	3-0
20-809-286	Anthropology of Globalization & Multiculturalism	3	3-0

Courses

		Credits	Hrs/week Lec-Lab
810 Speech and Performing Arts			
20-810-201	Fundamentals of Speech Composition	3	3-0
20-810-205	Interpersonal and Small Group Communication	3	3-0
20-810-211	Fundamentals of Oral Interpretation	3	3-0
20-810-230	Introduction to Drama	3	3-0
20-810-231	Theater Production	3	3-0
20-810-233	Literature of the Theater	3	3-0
20-810-235	Stagecraft 1	3	3-0
20-810-236	Stagecraft 2	3	3-0
20-810-237	Creating Original Theater	3	3-0
20-810-241	Costume Design Workshop	1	1-0
20-810-250	Introduction to Film	3	2-2
20-810-252	Survey of Radio, TV and Film	3	2-2
20-810-254	The History of World Cinema	3	2-2
20-810-258	Forensic Practicum 1	1	0-2
20-810-259	Forensic Practicum 2	1	0-2
20-810-260	Drama Practicum	1-2	0-2
20-810-262	Acting 1	3	3-0
20-810-263	Acting 2	3	3-0
20-810-268	Forensic Practicum 3	1	0-2
20-810-269	Forensic Practicum 4	1	0-2
20-810-270	Movement Theory and Training for Actors	1	0-2
815 Art			
20-815-200	Introduction to Art History	3	3-0
20-815-201	Design Fundamentals	3	3-3
20-815-202	Color and Design	3	3-3
20-815-203	Three-Dimensional Design	3	3-3
20-815-205	Drawing Fundamentals	3	3-3
20-815-206	Introduction to Studio Painting	2	2-2
20-815-210	Art History: The Modern Era	3	3-0
20-815-211	Women in the Arts	1	1-0
20-815-215	Drawing 2	3	3-0
20-815-219	Life Drawing	3	3-3
20-815-220	Advanced Life Drawing	3	3-3
20-815-234	Photography	3	3-3
20-815-235	Creative Photography	3	3-3
20-815-236	Advanced Creative Photography	3	3-3
20-815-241	Painting 1	3	3-3
20-815-242	Painting 2	3	3-3
20-815-253	Jewelry 1–Art Metal	3	3-3
20-815-254	Jewelry 2–Art Metal	3	3-3
20-815-286	Serigraphy	3	3-3
20-815-290	Ceramics 1	3	3-3
20-815-291	Ceramics 2	3	3-3
20-815-292	Watercolor 1	3	3-3
20-815-294	Sculpture 1	3	3-3
20-815-295	Sculpture 2	3	3-3
890 Student Success			
20-890-200	College Success	3	3-0

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/10

Engineering Transfer Blueprint Program

Program Number: 20-800-1S

An articulation agreement with University of Wisconsin-Madison College of Engineering (COE)

Center for Arts and Sciences

Courses offered at Madison Campus

For information call: (608) 246-6246
(800) 322-6282 ext. 6246

Engineering Transfer Blueprint Overview

Madison Area Technical College (MATC) and University of Wisconsin-Madison (UW-Madison) College of Engineering (COE) have signed an agreement which provides a clear pathway for students to start their post-secondary engineering career at MATC and, if all conditions are met, be guaranteed admission into UW-Madison's COE. The transfer agreement applies only to 10 specific degree programs, namely:

- Chemical Engineering
- Civil Engineering
- Computer Engineering
- Electrical Engineering
- Engineering Mechanics
- Geological Engineering
- Industrial Engineering
- Materials Science and Engineering
- Mechanical Engineering
- Nuclear Engineering

Students apply to MATC as a Liberal Arts Transfer student under the program code of 20-800-1S.

Eligibility: Students must be enrolled as first-year college students at MATC and sign a Declaration of Intent to Participate form prior to the completion of 24 college transfer credits at MATC. They must specify the engineering degree program at UW-Madison they wish to enter. They will then become Engineering Transfer Blueprint candidates.

The Agreement: MATC students must fulfill the Minimum Requirements for Application to University of Wisconsin-Madison. They must also complete UW-Madison COE Admission Requirements with at least a 2.5 grade point average (GPA) in specified math/science courses and an overall MATC GPA of at least a 3.0 in all college transfer courses. Students who successfully complete these requirements are guaranteed admission to one of UW-Madison's participating engineering degree-granting programs.

Additional details regarding the Engineering Transfer Blueprint can be found in a separate document called The Engineering Transfer Blueprint Requirements.

Curriculum

		Hrs/week	
FIRST YEAR			
First Semester		**Credits**	**Lec-Lab**
20-801-201	English 1*	3	3-0
20-804-231	Calculus and Analytic Geometry 1*	5	5-0
20-806-209	College Chemistry 1*	5	4-3
	Social Science/Humanities**	3	3-0
	Semester Total	**16**	
Second Semester			
20-804-232	Calculus and Analytic Geometry 2*	5	5-0
20-806-212	College Chemistry 2*	5	4-3
20-623-260	Introduction to Engineering Design***	3	2-3
	Social Science/Humanities**	3	3-0
	Semester Total	**16**	
SECOND YEAR			
First Semester			
20-806-223	University Physics 1-Calculus Based*	5	5-3
20-804-233	Calculus 3**	5	5-0
	Recommended Course***	3-5	
	Social Science/Humanities/Ethnic Studies**	3	3-0
	Semester Total	**16-18**	
Second Semester			
20-806-224	University Physics 2-Calculus Based**	5	5-3
20-804-241	Introduction to Engineering Statistics***	3	4-1
	Recommended Course***	3-5	
	Social Science/Humanities**	3	3-0
	Semester Total	**14-16**	

*Required for Engineering Transfer Blueprint.

**Required in all COE degree programs. (Exception: Calculus 3 is not required for Materials Science and Engineering.)

***Recommended course. One or more of these courses might fulfill COE degree program requirements; check the curriculum of your specified program and consult with an advisor.

20-606-231	Introductory Engineering Graphics	3 credits
20-605-252	Introduction to Computer Engineering	3 credits
20-605-270	AC/DC Circuit Techniques and Principles	3 credits
20-804-255	Techniques in Ordinary Differential Equations	3 credits
20-804-XXX	Matrix and Linear Algebra	
10-801-198	Speech	3 credits
20-623-260	Introduction to Engineering Design	3 credits
20-804-208	Computer Science	3 credits
20-804-241	Introduction to Engineering Statistics	3 credits
20-806-203	Introduction to Zoology	5 credits
20-806-209	Organic Chemistry 1	5 credits
20-806-212	Organic Chemistry 2	5 credits
20-806-244	General Geology	4 credits
20-809-211	Macroeconomics	3 credits
20-809-212	Microeconomics	3 credits
20-809-228	Environmental Economics	3 credits

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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MADISON AREA TECHNICAL COLLEGE

Real world smart.

Ethnic Studies Certificate

Program Number: 90-809-1

Certificate

Center for Arts and Sciences

Program offered at Madison Campus

For information call: (608) 246-6246
(800) 322-6282 Ext. 6246

ABOUT THE CERTIFICATE

Ethnic studies courses explore the position of ethnic and racial minorities in the history, culture, and society of the United States. These courses develop philosophical insights and theoretical tools that encourage further exploration of the entire spectrum of society and culture in the U.S.

WHY SHOULD I TAKE AN ETHICS STUDIES COURSE:

People of color have contributed significantly to the making of America, but often they are not given their full due. In the past, the voices of racial and ethnic minorities have been silenced. Consequently, their faces are relegated to the shadows, they have been ignored and forgotten.

Ethnic Studies courses are designed to nurture appreciation of those often silenced voices and forgotten lives. An ethnic studies course may be your opportunity to begin your own exploration of the vitally important contributions that people of color have made to American history, culture, and society.

These courses also provide an opportunity to examine critically the phenomena of race and ethnicity. What do we mean by race and ethnicity? Why do Americans expend so much energy and effort creating and maintaining the social divisions that we call race and ethnicity? And further, how have history, culture, and society been shaped by–and simultaneously been shapers of–our ideas about race and ethnicity?

CERTIFICATE OUTCOMES

Interact in the workplace with sensitivity to issues arising from political, economical, and cultural differences.
Critically interpret and value cultural traditions, art, and issues throughout your life.
Advocate for social justice in community and service groups.
Promote respect and equity in society by applying what you have learned while earning this certificate.

Curriculum

		Credits	Hrs/week Lec-Lab
Literature Courses:			
20-801-212	Ethnic Literature	3	3-0
20-801-213	Native American Literature	3	3-0
20-801-214	African American Literature.	3	3-0
20-801-222	U.S. Latino Literature	3	3-0
History Courses:			
20-803-214	Native American History	3	3-0
20-803-238	Introduction to North American Latino/Chicano Histories	3	3-0
20-803-240	Afro-American History	3	3-0
Social Sciences Courses:			
20-809-217	Race, Class, Gender	3	3-0
20-809-283	Cultural Anthropology & Human Diversity	3	3-0
20-809-284	Anthropology of Race, Ethnicity and Nationhood	3	3-0
20-809-286	The Anthropology of Globalization & Multiculturalism	3	3-0

To be awarded the Madison College Ethnic Studies certificate, you need to successfully complete at least one course from each of the three academic areas (Literature, History and Social Sciences) and also complete an independent research project under the supervision of the Ethnics Studies director.

Courses

20-801-212 Ethnic Literature 3 credits
Special Topics in Ethnic Literature explores questions of identity within various cultural contexts. Writers represent one or more ethnic groups working in one or more genres of literature with emphasis on developments in voice, genre, and style over chronological and geographical periods. Individual sections may vary in particular emphasis. Prerequisite: English 1, 20-801-201 or English 2, 20-801-202 or Intro to Literature, 20-801-204 or with instructor's permission.

20-801-213 Native American Literature 3 credits
Native American Literature introduces students to rich, complex and varied literary traditions reflected in the works of contemporary Native American storytellers in fiction, poetry, drama, and film. Issues of language, cultural identity, historical witness, and current social and political experiences are reflected in these genres. The works are discussed in terms of specific cultural and universal themes, and their place in the emerging Native American literary canon. Prerequisite: English 1, 20-801-201 or English 2, 20-801-202 or Intro to Literature, 20-801-204 or with instructor's permission.

20-801-214 African American Literature 3 credits
African American Literature introduces students to the rich, complex and varied literary traditions reflected in the works of African American writers. Studies developments and achievements in voice, genre, and style and explores issues of language, cultural identity, historical witness, and social and political experience. Individual sections may focus on a particular theme, genre, or period for emphasis. Prerequisite: English 1, 20-801-201 or English 2, 20-801-202 or Intro to Literature, 20-801-204 or with instructor's permission.

20-801-222 U.S. Latino Literature 3 credits
This course explores U.S. Latino texts, including poetry, fiction, drama, and autobiography by Mexican-American, Puerto-Rican American, Cuban-American and Dominican-American writers. Writers from other Latino groups may also be included. Class discussion examines the rich and varied literary traditions of Latino communities in the United States. Students analyze issues of theme, genre, language, cultural identity and social and political experiences, as reflected in the texts chosen for the course. Classes are conducted in English. All required texts were originally written in English or are offered in English translation. Prerequisite: English 1, 20-801-201 or English 2, 20-801-202 or Intro to Literature, 20-801-204 or with instructor's permission.

20-803-214 Native American History 3 credits
Native American History is a survey course focusing on Native American cultures and histories from early times to the present. Particular attention is placed on the variety of lifestyles of native peoples, their early reactions to Euro-Americans, outstanding native leaders, assimilation efforts and relations with the U.S. government. Completion of 20-803-211, American History 1607-1865; or 20-803-212, American History 1865 to Present, is recommended. Prerequisite: English 1, 20-801-201; or Comm. Skills 1, 10-801-151; or College Reading Strategies, 10-808-101; with a C or better, or appropriate reading placement scores.

20-803-238 Introduction to North American Latino/Chicano Histories 3 credits
This course surveys Latino/Chicano(a) histories and cultures in North America from earliest times to the present. Special emphasis is placed on indigenous peoples as well as later immigrants from Mexico, Cuba, Puerto Rico, Central and South America, and other areas within the Caribbean. Students are introduced to the varieties and complexities of Latino/Chicano social, political and economic conditions and achievements in the region of what is now the United States. Prerequisite: English 1, 20-801-201; or Comm. Skills 1, 10-801-151; or College Reading Strategies, 10-808-101; with a C or better, or appropriate reading placement scores.

20-803-240 Afro-American History 3 credits
Broad introductory survey of significant experiences that have shaped U.S. race relations, beginning with the west coast of Africa during the Middle Ages and moving through the last 30 years of this century in the United States. Special attention is given to slavery, family, politics, education and civil rights. Prerequisite: English 1, 20-801-201; or Comm. Skills 1, 10-801-151; or College Reading Strategies, 10-808-101; with a C or better, or appropriate reading placement scores.

20-809-217 Race, Class, Gender 3 credits
This introductory course examines ethnic, racial, religious and cultural origins of Americans. The course focuses on social interactions that contribute to the understanding of different groups in diverse settings.

20-809-283 Cultural Anthropology & Human Diversity 3 credits
This course focuses on exploring the range of modern human cultural diversity across the world. The class will examine the cultural practices and historical ties that constitute commonalities across cultures. Particular attention will be paid to the cultural complexity of modern urbanized societies such as that of the United States.

20-809-284 Anthropology of Race, Ethnicity and Nationhood 3 credits
Concerns and conflicts arising from how human beings think about, talk about and act upon ideas about race, ethnicity, nationhood are discussed in class. Conflicts such as wars, crimes, and injustices perpetrated in the name of some racial, ethnic, or national entity are discussed. Prerequisite: any college-level social science course.

20-809-286 The Anthropology of Globalization & Multiculturalism 3 credits
This course explores the ways that our societies, cultures and experiences have been transformed, in both positive and negative ways, by the political, technological and economic changes brought about by the collapse of the old colonial systems and the continuing growth of all pervasive capitalism, consumerism and militarism.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/10

Journalism

Program Number: 90-801-2

Certificate

Center for Arts and Sciences

Program offered at Madison Campus

For information call: (608) 246-6246 or 258-2389
(800) 322-6282 ext. 6246 or ext. 2389

ABOUT THE CERTIFICATE

The Journalism Certificate gives students the basic understanding and skills needed to work as an entry-level journalist.

- **News/Feature Writer**: Students acquire the skills to work as a news reporter, feature writer, public relations writer, or copy editor.

Students need only to complete the curriculum requirements (four required courses and one elective course) to earn the certificate.

5 REASONS FOR A JOURNALISM CERTIFICATE

Graduates of the MATC Journalism Certificate Program can use this certificate in different ways:

1) Gain employment in the field of journalism. Past students have left the MATC Certificate Program and have landed full-time or part-time jobs in journalism or public relations. Other students have used the skills they acquired in the program to specialize as freelance writers or to work in intern positions.

2) Use as "platform" to four-year school. Students can gain journalism credits that transfer to colleges and universities in Wisconsin and elsewhere.

3) Develop a portfolio of published work. Students develop their own portfolios of published work. Each student will also leave the Journalism Certificate Program with a quality cover letter/resume.

4) Use journalism credits for associate degree. Journalism credits can be used as electives for the Liberal Arts associate degree.

5) Enhance your media literacy and communication skills. The Journalism Certificate program will show you how the media operates in our society. At the same time, you will sharpen your communication skills.

Curriculum

News/Feature Writer

		Credits	Hrs/week Lec-Lab
Four Required Courses			
20-801-251	Intro to Mass Communication	4	4-0
20-801-245	Newswriting and Reporting	4	4-0
20-801-246	Feature Writing.	4	4-0
20-801-247	Internship/Professional Writing	2	2-0
	Total	**14**	

One Elective

Students must also complete at least one course (minimum 3 credits) in the following electives:

20-801-252	World Issues Journalism	4	4-0
20-801-253	Documentary Storytelling	3	3-0
20-801-263	Editing for Workplace and Professional Pubs	3	3-0
	Total	**(at least) 3**	

Note:
-- Students must earn a grade of BC or higher in all courses to graduate.
-- In addition to the successful completion of 17 credits, students must do the following:
a) Submit a portfolio of written work that includes at least three quality news articles or feature stories published by a media organization, a business, or a nonprofit organization.

Courses

20-801-245 Newswriting and Reporting 4 credits
This course teaches students the basic skills and knowledge needed as an entry-level reporter working at a small media organization. In Newswriting and Reporting, the student will learn general news reporting; speech, news conference, and public meeting coverage; and police, fire and accident reporting. In addition, students will learn interviewing skills needed to write a compelling news feature. Students will be presented with a basic understanding of libel law. Students will also study online journalism and how media convergence impacts spot news coverage today. Prerequisite: English 1, 20-801-201, or Written Communication, 10-801-195, or the instructor's consent.

20-801-246 Feature Writing 4 credits
Writing a longer magazine feature is the main focus of this course. As a follow-up to Newswriting and Reporting, students will examine in more detail various interviewing strategies needed as a feature writer. Then students will apply these interviewing skills when researching well-developed, compelling features. Students will learn how to incorporate the narrative structure, or storytelling approach, into their feature stories. Students will examine privacy laws as they apply to feature stories. Students will also study online journalism and the impact of media convergence as on long-form journalism. Prerequisite: English 1, 20-801-201, or Written Communication, 10-801-195, or the instructor's consent.

20-801-247 Internship/Professional Writing 2 credits
Students will complete a 96-hour professional writing internship. Students will spend the semester working as an intern in an area of journalism or public relations that they find most interesting. Examples include magazines, newspapers, public and commercial radio, public and commercial television, book publishing, public relations, and Web communications. Students can find their own placed to intern, or they can work together with the course instructor to secure an internship for the semester .Prerequisites: 1) Intro to Mass Communication 20-801-251, 2) Newswriting/Reporting 20-801-245, or Feature Writing 20-801-246.

20-801-251 Intro to Mass Communication 4 credits
This course examines the history, evolution, and cultural power of today's media, both nationally and internationally. The course analyzes newspaper journalism, magazine journalism, radio news, Internet journalism, television news, public relations, advertising, and journalism ethics and law. Prerequisite: English 1, 20-801-201, or Written Communication, 10-801-195, or the instructor's consent..

20-801-252 World Issues Journalism 4 credits
Students of the course will engage in news reporting assignments that relate to world issues, such as water, energy, and war. Students will create audio news reports using podcast software and voice recording technology. Students will also record video logs and write news summaries about world issues. In addition to the reporting assignments, students will study free press issues worldwide and the journalism practices and traditions that emerge from different parts of the world. Prerequisites: English 1, 20-801-201 or Written Communications, 10-801-195, or the instructor's consent.

20-801-253 Documentary Storytelling 3 credits
Documentary Storytelling is an introduction to the craft of telling non-fiction and news stories through the medium of digital video. This course will teach the news reporting and writing skills needed for the documentary format, along with journalism theory, law, and ethics of video journalism. Students will also learn basic digital camcorder operation, storyboard development, video editing, sound editing, and podcasting. Pre-requisite: English 1, 20-801-201, or Written Communications, 10-801-195, or the instructor's consent.

20-801-263 Editing for Workplace/Professional 3 credits
Editing for Workplace and Professional Publications gives an overview of techniques used by editors to prepare documents for production. State-of-the-art usability guidelines and editing and testing methods are stressed throughout the course. Attention to the design and visual appeal of texts is considered an inherent part of the editor's responsibility. The course requires the students to complete a series of editing projects, in print and electronic formats. The course assignments reflect the traditional "levels of edit" model, which stresses all aspects of the editing process, including research and fact checking, page design, usability, content editing, stylistic issues, copyediting, and liability and other legal issues. Prerequisite**:** 1) English 1, 20-801-201, or Written Communication, 10-801-195; 2) Technical Communications, 20-801-260, or instructor's consent.

Career Potential:

- **News Reporter**
- **Feature Writer**
- **Public Relations Writer**
- **Copy Editor**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/10

Accounting

Program Number: 10-101-1

Associate in Applied Science Degree

Accounting & Finance Program Cluster

Center for Business and Applied Arts

Program offered at Madison, Portage, Reedsburg, and Watertown Campuses

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Program

The Accounting Program provides the educational background and training required for entry positions in private business and industry, governmental agencies and public accounting firms. Job experience and continuing education provide the necessary qualifications for advanced positions in the field of accounting. Keyboard skills and computer literacy are required.

Requirements for Admission

1) High school diploma, HSED or GED with a minimum grade point average of 2.0 or equivalent

Program Courses

10-101-111 Accounting 1–Principles 4 credits
Introduction to the field of accounting. The accounting cycle of journalizing transactions, posting, adjusting and closing entries, as well as the preparation of accounting statements is emphasized for service industries and merchandising concerns. Details of accounting for cash and receivables are studied. An introduction to a computerized accounting system is also included. Recommend concurrent enrollment in Math of Finance, 10-804-144.

10-101-113 Accounting 2–Principles 4 credits
Procedures of accounting for partnerships and corporations. Additional topics include fixed assets, current liabilities and payroll, long-term liabilities, investments, statement of cash flows, analysis of financial statements, and an introduction to cost accounting. Prerequisite: grade of C or better in Accounting 1-Principles, 10-101-111 and prerequisite or co-requisite: Math of Finance, 10-804-144.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-101-111	Accounting 1-Principles	4	4-0
10-102-134	Business Organization and Management	3	3-0
10-102-160	Business Law 1	3	3-0
10-103-133	Excel–Beginning	1	2.25-.75
10-801-195	Written Communication	3	3-0
10-804-144	Math of Finance	3	3-0
	Semester Total	**17**	
Second Semester			
10-101-113	Accounting 2-Principles	4	4-0
10-101-123	Tax 1	4	4-0
10-101-138	Accounting and Payroll Systems	3	3-0
10-801-196	Oral/Interpersonal Communication	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Semester Total	**17**	
SECOND YEAR			
First Semester			
10-101-121	Accounting 3-Intermediate	4	4-0
10-101-125	Cost Accounting	4	3-0
10-801-198	Speech	3	3-0
10-809-195	Economics	3	3-0
10-809-166	Intro to Ethics: Theory & App **OR**	3	3-0
20-809-276	Business Ethics*	(3)	(3-0)
	Semester Total	**17**	
Second Semester			
10-101-122	Accounting 4-Intermediate	4	4-0
10-101-124	Auditing	3	3-0
10-101-137	Computerized Accounting Applications	3	3-1
10-114-126	Corporate Finance	3	3-0
10-106-190	Professional Development	1	1-0
	Elective	3	E
	Semester Total	**17**	

Electives must be associate (100 level) or college transfer (200 level) courses.

Graduation Requirement

A minimum grade of C is required for all occupational specific courses in order to graduate.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisites

* Other course options are available. See program advisor for information.

Program Courses (continued)

10-101-121 Accounting 3–Intermediate 4 credits
This intermediate-level course builds on the material covered in the Accounting Principles-1 and -2 courses. It expands on earlier coverage of both the income statement and balance sheet. Revenue recognition concepts and methods are covered. Emphasis is also placed on each classification of asset. This emphasis includes in-depth coverage of cash, receivables and inventory. Coverage also includes operational asset acquisition, depreciation, and disposal. Present value concepts are studied and applied. Excel spreadsheet software is used in this course. Prerequisite: grade of C or better in 10-101-113, 10-103-133, and 10-804-144.

10-101-122 Accounting 4–Intermediate 4 credits
Emphasizes analysis of financial statements. Generally accepted accounting principles are applied in the preparation, analysis and interpretation of financial statements. Particular emphasis is applied to valuation of current and long-term liabilities and stockholders' equity, timing of the recognition of revenue, and earnings per share. Special topics included are taxes, long-term investments, and leases. Further consideration is applied to errors and their correction, and statements of cash flow. Prerequisite: grade of C or better in 10-101-121.

10-101-123 Tax 1 4 credits
Introduction to federal and state income tax laws with an emphasis on personal taxes. These areas are included: income, deductions, credits, depreciation, gains and losses, and sole proprietorship taxation. The course requires the preparation of a series of individual income tax returns.

10-101-124 Auditing 3 credits
This course is an introduction to auditing. Emphasis is on the preparation of working papers to support audit findings. An audit case is completed to illustrate various auditing concepts and procedures. The course includes an evaluation of internal controls, conventional auditing procedures, and the preparation of audited financial statements in conformity with generally accepted accounting principles. Prerequisite: 10-101-121 or concurrent enrollment.

10-101-125 Cost Accounting 4 credits
Areas emphasized include job order cost, process cost, standard costs, joint cost and budgets. Cost-profit-volume relationships and other cost systems used in business decision making require that students perform accounting procedures to accumulate and record the cost data typical of a business environment. Prerequisite: grade of C or better in 10-101-113 and 10-103-133.

10-101-137 Computerized Accounting Applications 3 credits
Provides practical experience developing and applying flexible solutions to accounting problems using Excel. Spreadsheet tools that will be utilized include financial, lookup and database functions; logical statements (IF); goal seek; pivot tables; and macros. In addition, the student will learn to use QuickBooks Pro accounting software. Prerequisite: grade of a C or better in 10-101-113 and 10-103-133.

10-101-138 Accounting and Payroll Systems 3 credits
A survey of accounting and payroll systems covering procedures and methods to capture data and report financial information. Specific topics include flowcharting, internal controls, and transaction work in both manual and computerized environments. Special emphasis is also placed on payroll calculations and the processing of payroll information. Lab intensive course involving hands-on experience with Excel spreadsheet software and Peachtree accounting software. Prerequisites: grade of C or better in 10-101-113 (or concurrent enrollment) and completion of 10-103-133.

10-114-126 Corporate Finance 3 credits
This intermediate-level course views finance from the perspective of the financial manager. Topics include techniques of financial analysis, forecasting and budgeting, operating and financial leverage, working capital management, the time value of money, cost of capital, long-term debt and stock financing, dividends and retained earnings. Students are expected to apply both principles of accounting and finance. Prerequisite: grade of a C or better in 10-101-113 and 10-804-144.

10-102-134 Business Organization and Management 3 credits
This survey course imparts an understanding of the economic and legal environment in which businesses operate, as well as an understanding of the organization and management of business enterprises. An emphasis is placed on business terminology and concepts.

10-102-160 Business Law 1 3 credits
This survey course covers legal principles used in the business world. Contracts, sales, bailments, agency, employment, property law, torts, criminal law, marital property and bankruptcy are emphasized. The course is taught on a level suitable for an associate degree student. Federal, state and case law serve as the basis of study.

10-103-133 Excel–Beginning 1 credit
Introduction to Excel spreadsheet software. Create, edit, save, format, print, perform calculations, copy/move text and formulas, and create charts. Working knowledge of Windows presumed.

10-106-190 Professional Development 1 credit
Research the job market, develop a job search/career portfolio, and prepare for the job interview. The portfolio will include: a cover letter, resume, reference sheet, job application form, thank you letter and work samples. It is recommended that this course be taken during the third or fourth semester of the program.

10-804-144 Math of Finance 3 credits
This course takes an algebraic approach to solving financial problems. Topics include personal finance, mathematics of retailing, mathematics of banking, and statistical applications. Major emphasis is placed on solving problems involving the time value of money by using a financial calculator. The material in this course develops a sound base for subsequent courses by using an analytical approach to problem solving. Prerequisite: appropriate score on COMPASS test or Elementary Algebra with Applications, 10-804-110.

Recommended Electives

Electives must be associate (100 level) or college transfer (200 level) courses.

10-101-110	Accounting 1–Problems (Lab)	1 credit
10-101-112	Accounting 2–Problems (Lab)	1 credit
10-101-118	Management Accounting	4 credits
10-101-140	Accounting/Business Internship	3 credits
10-102-104	Business Statistics	3 credits
10-102-127	Financial Analysis	3 credits
10-102-143	Management Techniques	3 credits
10-103-139	Excel–Intermediate	1 credit
10-103-145	Access-Beginning	1 credit
10-106-172	Administrative Office Management	2 credits

Career Potential:

- **Accounts Payable/ Receivable Clerk**
- **Bookkeeper/**
- **Payroll Clerk**
- **Cost Accountant**
- **Public Accountant**
- **Staff Accountant**
- **Tax Accountant**
- **Account Manager**
- **Account Specialist**
- **Payroll Accountant**

With additional education and/or work experience, graduates may find employment as:

- **Auditor**
- **Certified Public Accountant**
- **Comptroller**
- **Treasurer**
- **Trust Officer**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Accounting Assistant

Program Number: 31-101-1

One-Year Technical Diploma

Accounting & Finance Program Cluster

Center for Business and Applied Arts

Program offered at Madison, Portage, Reedsburg, and Watertown Campuses

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Program

The Accounting Assistant program provides students with the skills and confidence necessary to perform entry-level bookkeeping and accounting work for local employers. Accounting Assistant majors may work in small business and be responsible for all aspects of bookkeeping or work in a larger firm under the supervision of an accountant and specialize in a certain area.

Requirements for Admission

1.) High school diploma, HSED or GED with a minimum grade point average of 2.0 or equivalent; 2.) algebra, grade of C or better.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-101-111	Accounting 1-Principles	4	4-0
10-102-134	Business Organization and Management	3	3-0
10-103-133	Excel–Beginning	1	2.25-.75
10-801-195	Written Communication	3	3-0
10-804-144	Math of Finance	3	3-0
	Semester Total	**14**	
Second Semester			
10-101-113	Accounting 2-Principles	4	4-0
10-101-123	Tax 1	4	4-0
10-101-138	Accounting and Payroll Systems	3	3-0
10-103-139	Excel-Intermediate	1	2.25-.75
10-106-190	Professional Development	1	1-0
	Semester Total	**13**	

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite.

Graduation Requirement:
Please note: A minimum grade of C is required for all occupational specific courses in order to graduate.

Madison Area Technical College

Accounting Assistant

Program Number: 31-101-1

Program Courses

10-101-111 Accounting 1–Principles 4 credits
Introduction to the field of accounting. The accounting cycle of journalizing transactions, posting, adjusting and closing entries, as well as the preparation of accounting statements is emphasized for service industries and merchandising concerns. Details of accounting for cash and receivables are studied. An introduction to a computerized accounting system is also included. Recommend concurrent enrollment in Math of Finance, 10-804-144.

10-101-113 Accounting 2–Principles 4 credits
Procedures of accounting for partnerships and corporations. Additional topics include fixed assets, current liabilities and payroll, long-term liabilities, investments, statement of cash flows, analysis of financial statements, and an introduction to cost accounting. Prerequisite: grade of C or better in Accounting 1-Principles, 10-101-111 and prerequisite or co-requisite: Math of Finance, 10-804-144.

10-101-123 Tax 1 4 credits
Introduction to federal and state income tax laws with an emphasis on personal taxes. These areas are included: income, deductions, credits, depreciation, gains and losses, and sole proprietorship taxation. The course requires the preparation of a series of individual income tax returns.

10-101-138 Accounting and Payroll Systems 3 credits
A survey of accounting and payroll systems covering procedures and methods to capture data and report financial information. Specific topics include flowcharting, internal controls, and transaction work in both manual and computerized environments. Special emphasis is also placed on payroll calculations and the processing of payroll information. Lab intensive course involving hands-on experience with Excel spreadsheet software and Peachtree accounting software. Prerequisites: grade of C or better in 10-101-113 (or concurrent enrollment) and completion of 10-103-133.

10-102-134 Business Organization and Management 3 credits
This survey course imparts an understanding of the economic and legal environment in which businesses operate, as well as an understanding of the organization and management of business enterprises. An emphasis is placed on business terminology and concepts.

10-103-133 Excel–Beginning 1 credit
Introduction to Excel spreadsheet software. Create, edit, save, format, print, perform calculations, copy/move text and formulas, and create charts. Working knowledge of Windows presumed.

10-103-139 Excel–Intermediate 1 credit
Create complex formulas, expand use of functions, manage and link workbooks, create and use macros, use and analyze list data, enhance charts and workbooks. Working competency in Windows and Beginning Excel presumed.

10-106-190 Professional Development 1 credit
Research the job market, develop a job search/career portfolio, and prepare for the job interview. The portfolio will include: a cover letter, resume, reference sheet, job application form, thank you letter and work samples. It is recommended that this course be taken during the third and fourth semester of the program.

Career Potential:

- **Accounts Payable / Receivable Clerk**
- **Billing Clerk**
- **Bookkeeper/ Payroll Clerk**
- **Inventory Control Clerk**
- **Office Assistant**

With additional education and/or work experience, graduates may find employment as:

- **Accountant**
- **Bookkeeping Supervisor**
- **Office Manager**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Banking Services Certificate

Program Number: 90-114-2

Certificate

Accounting and Finance Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Certificate

The Banking Services Certificate is a certificate program for individuals interested in maintaining or pursuing careers in the financial services industry. The certificate is designed for updating and/or broadening the knowledge of employees in the field of financial services with an emphasis in lending. This certificate does not require an application to the college. Students register for individual courses during the open registration period each semester.

Unique Requirements for Completion

It is the student's responsibility to request the certificate from the Business and Applied Arts Center (608-246-6339) once all required classes have been completed and grades have been received. A grade of C or better is required in each course to award the certificate.

Curriculum

Courses		Credits	Hrs/week Lec-Lab
10-804-144	Math of Finance	3	3-0
10-114-130	Personal Finance	3	3-0
10-101-106	Accounting Concepts*	3	3-0
10-114-128	Financial Institutions	3	3-0
10-104-104	Selling Principles	3	3-0
10-114-129	Lending Principles	3	3-0
	Total	**18**	

*Accounting 1-Principles (10-101-111) or Applied Accounting (10-101-108) may be substituted for this course.

Courses should be taken in the order listed above.

Additional recommended courses (should be taken in order listed below):

Courses		Credits	Hrs/week Lec-Lab
10-101-111	Accounting 1-Principles	4	4-0
10-103-133	Excel-Beginning	1	0.75-2.25
10-101-123	Tax 1	4	4-0
10-104-102	Marketing Principles	3	3-0

Madison Area Technical College

Banking Services Certificate

Program Number: 90-102-2

Required Courses

10-101-106 Accounting Concepts 3 credits
Surveys accounting principles and practices with an emphasis on interpretation, rather than preparation, of financial statements. Presents basic business terminology, cash basis and accrual basis accounting, ratio analysis, payroll, and budgeting. This class is not for students majoring in accounting.

10-114-128 Financial Institutions 3 credits
Introductory-level course which considers the role of financial institutions in the economy. Topics include financial intermediation, the Federal Reserve System, financial markets and instruments, and non-bank financial institutions, including savings and loan associations, credit unions, finance companies, insurance companies, pension funds, mutual funds and governmental financial institutions. Prerequisite: grade of C or better in Math of Finance, 10-804-144, and prerequisite or co-requisite of Personal Finance, 10-102-130.

10-114-129 Lending Principles 3 credits
Introductory course considers the control and management of credit and the underlying principles that govern lending decisions. The course will focus on consumer, real estate and commercial lending. Students will learn basic underwriting guidelines with an introduction to collateral. Prerequisites: Accounting course (Accounting Concepts, 10-101-106, Applied Accounting, 101-101-108, OR Accounting 1-Principles, 10-101-111) AND Personal Finance, 10-102-130.

10-114-130 Personal Finance 3 credits
This introductory course considers finance from the point of view of the individual or family unit. Topics include budgets, insurance, housing, borrowing, saving, investing and estate planning. Students complete personal finance projects applying the material learned.

10-104-104 Selling Principles 3 credits
Acquaints students with the basic principles and applications of the sales process as they apply to industrial, wholesale and retail selling situations. Includes prospecting and qualifying, planning and pre-approaching, approaching the customer, the sales presentation/demonstration, handling objections, closing the sale and post-sale service and follow-up.

Optional Recommended Courses

10-101-111 Accounting 1–Principles 4 credits
Introduction to the field of accounting. The accounting cycle of journalizing transactions, posting, adjusting and closing entries, as well as the preparation of accounting statements is emphasized for service industries and merchandising concerns. Details of accounting for cash and receivables are studied. An introduction to a computerized accounting system is also included. Recommend concurrent enrollment in Math of Finance, 10-804-144.

10-101-123 Tax 1 4 credits
Introduction to federal and state income tax laws with an emphasis on personal taxes. These areas are included: income, deductions, credits, depreciation, gains and losses, and sole proprietorship taxation. The course requires the preparation of a series of individual income tax returns.

10-103-133 Excel-Beginning 1 credit
Introduction to Excel spreadsheet software. Create, edit, save, format, print, perform calculations, copy/move text and formulas, create charts, create complex formulas and expand use of functions. Prerequisite: Competency in Windows.

10-104-102 Marketing Principles 3 credits
This foundation course introduces students to the marketing process and how it operates in today's dynamic organizations. The entire marketing mix is examined on a broad scale. Topics include: market segmentation and targeting strategies, market research, consumer behavior, product development, pricing policies, distribution and an overview of promotion. Provides a comprehensive overview of the exciting world of marketing.

10-804-144 Math of Finance 3 credits
This course takes an algebraic approach to solving financial problems. Topics include personal finance, mathematics of retailing, mathematics of banking, and statistical applications. Major emphasis is placed on solving problems involving the time value of money by using a financial calculator. The material in this course develops a sound base for subsequent courses by using an analytical approach to problem solving. Prerequisite: appropriate score on COMPASS test or Elementary Algebra with Applications, 10-804-110.

Career Potential:

- **Loan Officer**
- **Title Company Representative**
- **Personal Banker**
- **Assistant Bank Manager**

With additional education and/or experience, graduates may find employment as:

- **Bank Manager**
- **Mortgage Lender**
- **Small Business Lender**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Finance

Program Number: 10-114-2

Associate in Applied Science Degree

Accounting & Finance Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

First-year or limited courses offered at Fort Atkinson, Portage, Reedsburg and Watertown Campuses

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Program

The Finance program provides the educational background and training required for entry positions in banks, savings and loan associations, finance companies, credit unions, real estate, insurance, financial planning, government, or mercantile and manufacturing enterprises. Job experience and continuing education provide the qualifications necessary for advancement. Finance relates to the management of, not necessarily the accounting for, monetary affairs. The finance student, while successfully completing the core curriculum, will choose one of six concentration areas of interest from the section below.

Requirements for Admission

1.) High school diploma, HSED or GED with a minimum grade point average of 2.0 or equivalent.

Additional Finance Concentration Areas (6 credits):

***Banking:**		
104-104	Selling Principles	3 credits
114-129	Lending Principles	3 credits
***Para-financial Planner:**		
104-104	Selling Principles	3 credits
114-120	Financial Planning	3 credits
***Insurance:**		
162-120	General Insurance Industry Overview	2 credits
162-123	Insurance Careers	2 credits
AND		
162-108	Insurance Pre-Licensing—Life	1 credit
162-109	Insurance Pre-Licensing—Health	1 credit
OR		
162-110	Insurance Pre-Licensing—Property	1 credit
162-111	Insurance Pre-Licensing—Casualty	1 credit
***Real Estate:**		
194-175	Real Estate Investment	3 credits
194-184	Real Estate Finance	3 credits
Small Business:		
145-102	Small Business Development & Planning	3 credits
145-106	Small Business Marketing & Promotion Tech	3 credits

*Certificates also available in the above programs

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-101-111	Accounting 1-Principles	4	4-0
10-114-130	Personal Finance	3	3-0
10-103-133	Excel–Beginning	1	2.25-.75
10-103-145	Access-Beginning	1	2.25-.75
10-801-195	Written Communication*	3	3-0
10-804-144	Math of Finance	3	3-0
10-809-195	Economics*	3	3-0
	Semester Total	**18**	
Second Semester			
10-101-113	Accounting 2-Principles	4	4-0
10-102-104	Business Statistics	3	3-0
10-114-128	Financial Institutions	3	3-0
10-102-160	Business Law 1 **OR**	3	3-0
10-194-182	Real Estate Law	(3)	3-0
10-103-139	Excel–Intermediate	1	1-2
10-801-196	Oral/Interpersonal Communication*	3	3-0
	Semester Total	**17**	
SECOND YEAR			
First Semester			
10-101-118	Management Accounting	4	4-0
10-114-126	Corporate Finance	3	3-0
10-114-117	Money and Banking	3	3-0
10-809-199	Psychology of Human Relations*	3	3-0
	Elective	3	E
	Semester Total	**16**	
Second Semester			
10-114-127	Financial Analysis	3	3-0
10-114-140	Investments	3	3-0
10-102-143	Management Techniques	3	3-0
20-809-276	Business Ethics** **OR**	3	3-0
10-809-166	Intro to Ethics: Theory and Application*	(3)	(3-0)
10-809-197	Contemporary American Society*	3	3-0
	Semester Total	**15**	

NOTE: Students are encouraged to complete courses in the above semester order.

Electives must be associate degree (100 level) or college transfer (200 level) courses.

*For the Associate Degree general education courses, **college transfer equivalents** are available. Please see program faculty or an advisor for complete details. Each student is advised to plan for college transfer possibilities **in advance** of starting the program. For the most accurate transfer information, directly contact the Admissions Office of the transfer school.

**Other courses may fulfill this requirement. See the Center for Business & Applied Arts (Room 369) for a list of acceptable courses.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite.

Madison Area Technical College

Program Number: 10-114-2

Finance

Program Courses

10-101-111 Accounting 1–Principles 4 credits
Introduction to the field of accounting. The accounting cycle of journalizing transactions, posting, adjusting and closing entries, as well as the preparation of accounting statements is emphasized for service industries and merchandising concerns. Details of accounting for cash and receivables are studied. An introduction to a computerized accounting system is also included. Recommend concurrent enrollment in Math of Finance, 10-804-144.

10-101-113 Accounting 2–Principles 4 credits
Procedures of accounting for partnerships and corporations. Additional topics include fixed assets, current liabilities and payroll, long-term liabilities, investments, statement of cash flows, analysis of financial statements, and an introduction to cost accounting. Prerequisite: grade of C or better in Accounting 1-Principles, 10-101-111 and prerequisite or co-requisite: Math of Finance, 10-804-144.

10-101-118 Management Accounting 4 credits
Emphasizes the managerial use of accounting reports, the problem-solving functions of accounting in relation to current planning and control, performance evaluation, long-range planning, budgets and cost-volume-profit relationships. Prerequisite: Accounting 2-Principles, 10-101-113.

10-102-104 Business Statistics 3 credits
Introduces the theory of and application to basic statistical methods. Emphasizes solving practical business problems. Topics include basic measures, probability, sampling and time series analysis. Prerequisite: Excel–Beginning, 10-103-133 and recommend completion (grade of C or better) in Math of Finance, 10-804-144.

10-102-143 Management Techniques 3 credits
Covers problems facing management and workers with special emphasis on supervisory personnel and their challenges. Management principles are applied to such topics as the relationship of management to the business, its employees, the owner, other customers and the community. Problem solving at the supervisory level is emphasized.

10-102-160 Business Law 1 3 credits
Introductory survey course covering legal principles used in the business world. Emphasizes contracts, sales, bailments, agency, employment, property law, torts, criminal law, marital property and bankruptcy. Federal, state and case law serve as the basis of study.

10-114-117 Money and Banking 3 credits
This introductory course studies money, the banking system and the role of the Federal Reserve as central banker. Considers the implementation of monetary and fiscal policy through a central bank. Introduces the foundations of Monetarism and the framework of Keynesianism. Focus is set on the term structure of interest rates and the interrelationships of interest rates and financial markets. The economy, the banking system and financial markets are studied in the context of current events. Prerequisite: grade of C or better in Math of Finance, 10-804-144.

10-114-120 Financial Planning 3 credits
This course will take you through the financial planning process. The economic cycle of accumulation, conservation and distribution is explored. Cash flow analysis and Goal Based Planning are compared through specific examples and projects. This is a comprehensive course incorporating the review of investment statements, tax documents, insurance policies and other inputs to a well rounded financial program.

10-114-126 Corporate Finance 3 credits
This intermediate-level course views finance from the perspective of the financial manager. Topics include techniques of financial analysis, forecasting and budgeting, operating and financial leverage, working capital management, the time value of money, cost of capital, long-term debt and stock financing, dividends and retained earnings. Students are expected to apply both principles of accounting and finance. Prerequisites: grade of C or better in Accounting 2-Principles, 10-101-113 and Math of Finance, 10-804-144.

10-114-127 Financial Analysis 3 credits
A capstone course for the Finance program. Students work in teams to analyze an industry and work individually to analyze a specific company. The project familiarizes students with common sources of business and financial information and develops their analytical skills. A final oral and written report is required. Prerequisites: Excel–Beginning, 10-103-133, and grade of C or better in Management Accounting, 10-101-118 or Cost Accounting 1, 10-101-125.

10-114-128 Financial Institutions 3 credits
Introductory-level course which considers the role of financial institutions in the economy. Topics include financial intermediation, the Federal Reserve System, financial markets and instruments, and non-bank financial institutions, including savings and loan associations, credit unions, finance companies, insurance companies, pension funds, mutual funds and governmental financial institutions. Prerequisite: grade of C or better in Math of Finance, 10-804-144.

10-114-130 Personal Finance 3 credits
This introductory course considers finance from the point of view of the individual or family unit. Topics include budgets, insurance, housing, borrowing, saving, investing and estate planning. Students complete personal finance projects applying the material learned.

10-114-140 Investments 3 credits
This advanced course considers alternative investment media and markets. Topics include the investment environment, fundamental and technical analysis, timing, selectivity and diversification, and computer-based investment management. Investment analysis will make use of a student-developed spreadsheet platform. Prerequisites: grade of C or better in Personal Finance 1, 10-114-130 and Math of Finance, 10-804-144.

10-194-182 Real Estate Law 4 credits
Designed to acquaint students with the field of real estate as well as with Wisconsin real estate law and to prepare them for the Wisconsin Real Estate Salesperson's Examination. It covers topics such as the law of agency, legal descriptions, real estate contracts, mortgages, land contracts, consumer-protection laws, landlord-tenant laws, fair-housing ordinances and various other subjects related to the real estate profession. It is particularly oriented toward Wisconsin laws. Also available in CD-ROM format.

Career Potential:

- **Personal Banker/Consumer Lender**
- **Teller**
- **Paraplanners**
- **Customer Service Representatives**
- **Finance Trainings**
- **Financial Planning Assistants**
- **Loan Coordinators**
- **Operations Clerk/Managers**
- **Trust Assistant**

With additional education and/or work experience, graduates may find employment as:

- **Financial Planners**
- **Stockbrokers**
- **Managers in Financial Institutions**

Recommended Electives

10-101-123	Tax 1	4 credits
10-101-140	Accounting/Business Internship	3 credits
10-114-120	Financial Planning	3 credits
10-104-104	Selling Principles	3 credits
10-194-182	Real Estate Law	4 credits
10-194-184	Real Estate Finance	3 credits
10-194-175	Real Estate Investments	3 credits
10-104-102	Marketing Principles	3 credits

Graduation Requirement:
Please note: A minimum grade of C is required for all occupational specific courses in order to graduate.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Animation – Concept Development

Program Number: 10-207-1

Associate in Applied Arts Degree

Applied Arts Program Cluster

Center for Business and Applied Arts

Program offered at Downtown Education Center

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Program

The Associate of Arts Degree in Animation & Concept Development offers courses in traditional and digital skills related to professional 3D animation and concept planning and development. The program assists students in developing a broad foundation of skills addressing such topics as concept drawing and layout; figure drawing for concept work; concept presentation; digital modeling, texturing, rigging, and animation; level design and construction; asset creation and management; digital lighting and cinematography. Graduating students have the opportunity to apply for professional internships and mentorships, and are required to develop a professional portfolio and demo-reel.

Program Courses

10-207-103 Basic Drawing for Concepting 3 credits
An introductory drawing course emphasizing visualization and rendering skills necessary for concept development in animation and digital 3D. Students will learn the fundamentals of perspective, proportion, linear rendering, basic value structure, and digital approaches currently practiced in related industries. Lecture/demonstration and guided practice leads students toward the creation of concept drawings intended for modeling in 3D, including the development of variations, digital techniques to enhance productivity, and discussion of the strengths and limitations of 3D final execution.

10-207-110 Animation 1 2 credits
General overview of professional animation, including current industry standards and practices. Students begin a basic study of motion dynamics based largely on the industry's "Fundamental Principles of Animation," presented through a combination of lecture and demonstration and continual analysis of existing professional animation. Contemporary standards, definitions, workflows, etc., are discussed as well as job organization and job-tracking skills, and translation of basic motion principles into digital 3D space. Corequisites: 10-207-103, 10-207-111, and 10-207-112.

10-207-111 Introduction to Digital 3D 3 credits
A foundation introduction to digital 3D. Students learn to organize electronic files and projects into a professional workflow, and to electronically navigate Cartesian space. Class activities include the basics of digital modeling and surfacing, and the translation of 2D prep-work into 3D prototypes. Corequisites: 10-207-103, 10-207-110 and 10-207-112.

10-207-112 Photoshop for 3D and Concepting 2 credit
An introduction to Photoshop as used in professional 3D asset creation and concept development. File organization, efficiency, capture, and best practices are discussed, as well as basic texture creation, tiling, and interaction with 3D software. Corequisites: 10-207-110 and 10-207-111.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-207-103	Basic Drawing for Concepting	3	3-3
10-207-139	Design and Color for Concepting	2	2-2
10-207-112	Photoshop for 3D and Concepting	2	0-2
10-207-110	Animation 1	2	3-3
10-207-111	Intro to Digital 3D	3	3-3
10-801-195	Written Communication	3	3-3
10-809-199	Psychology Human Relations	3	3-3
	Semester Total	**18**	
Second Semester			
10-207-117	Figure Drawing for Concepting	3	3-3
10-207-120	Animation 2	3	3-3
10-207-122	Advanced Digital 3D	3	3-3
10-207-150	Animation Concepts 1	3	3=3
10-801-196	Oral/Interpersonal Communication	3	3-3
10-804-106	Introduction to College Math	3	3-0
	Semester Total	**18**	
SECOND YEAR			
First Semester			
10-207-130	Digital Set Design	1	2-2
10-207-131	Animation 3	3	3-3
10-207-140	Advanced Animation Studio 1	3	3-3
10-207-151	Animation Concepts 2	3	3-3
10-801-198	Speech	3	3-0
	Elective	4	E
	Semester Total	**17**	
Second Semester			
10-207-141	Animation 4	3	3-3
10-207-142	Animation Internship	1	0-4
10-207-143	Animation Portfolio	2	2-2
10-207-144	Adv. Animation Studio 2	3	3-3
20-809-276	Business Ethics*	3	3-0
10-809-197	Contemporary American Society	3	3-0
	Semester Total	**15**	

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

*Other course options are available. See program advisor for information.

Madison Area Technical College

Animation – Concept Development

Program Number: 10-207-1

Program Courses (continued)

10-207-117 Figure Drawing for Concepting 3 credits
An introduction to drawing the human figure for the purpose of creating concept art for 3D industries. Course syllabus includes approaches to gestural sketching, proportional and anatomical construction, complete figure studies, and digital techniques for making corrections, variations, and enhancing productivity based on current 3D industry practices. Prerequisites: 10-207-103 and 10-207-112.

10-207-120 Animation 2 3 credits
Continuation of the study of motion with emphasis on character movement and animation. A combination of lectures and class demonstration introduces students to forward- and inverse-kinematics, and gradually more complex character rigging. The continued study of body mechanics and dynamics by analyzing classic and contemporary professional animation will assist students in translating their own ideas into credible motion in digital form. Prerequisites: 10-207-103, 10-207-110 and 10-207-111.

10-207-122 Advanced Digital 3D 3 credits
A continuation of Introduction to Digital 3D, this course moves students into more complex modeling and surfacing challenges. Specialized techniques such as patch- and advanced spline-modeling are explored as well as specialized shaders, normal maps, and other advanced surfacing options. Students complete the semester with the design and creation of a complex, multi-part object correctly constructed, linked and boned for advanced animation techniques. Prerequisites: 10-207-103, 10-207-110, 10-207-111 and 10-207-112.

10-207-130 Digital Set Design 1 credit
Students concentrate on the planning and construction of architectural and environmental spaces in game-engine software. Basic architectural principles as they relate to animation and appropriate effects for specific themes are explored as well as environmental factors relating to the creation of credible worlds. Class activities include the exploration of specialized perspective problems, world-specific texture-sets, lighting and composition. Prerequisites: 10-207-103, 10-207-139 and 10-207-122.

10-207-131 Animation 3 3 credits
By exploring various off-computer techniques for analyzing character motion, students practice translating their observations into digital form and applying them to their own creations. Extensive study of actual footage and professional work helps students make the conceptual transition from real-world to believable virtual motion. Prerequisites: 10-207-120 and 10-207-122. Co-requisite: 10-207-151.

10-207-139 Design and Color for Concepting 2 credits
An introduction to the fundamental principles of design and how they relate to both 2D and 3D environments. The course examines differences in interpretation when design principles are applied to a variety of 2D and 3D scenarios. The second half of the semester introduces primary, secondary and tertiary colors leading to an in-depth exploration of color theory and how these concepts relate to 3D media.

10-207-140 Advanced Animation Studio 1 3 credits
This is the first class in a two-part comprehensive animation studio series. It is a project-based course in which students develop their own projects in consultation with instructors. Extensive studio time provides advanced students with large blocks of instructor and equipment access and allows an in-depth study of particular aspects of digital 3D targeting the completion of a professional quality demo-reel. Group study and interaction is encouraged and detail job tracking is required. Prerequisites: 10-207-120, 10-207-122 and 10-207-150.

10-207-141 Animation 4 3 credits
Animation 4 is an advanced course in multiple aspects of digital 3D motion. The focus of this course is to develop more intricate and complex character and mechanical animation. Prerequisites: 10-207-120, 10-207-122 and 10-207-151.

10-207-142 Animation Internship 1 credit
Students work on-site in a professional setting or work on a specific task in consultation with a professional mentor. Regular reviews with a professional are scheduled to assess the student's progress and work quality. Details of internship arrangements can be developed between the student and the participating company as long as specific minimum course requirements are fulfilled. Prerequisite: final semester in program and registration in 10-207-143.

10-207-143 Animation Portfolio 2 credits
Each student finalizes a series of animations and other artwork to be posted online highlighting his/her capabilities. The collection is targeted to potential employers and/or to four-year animation degree programs for further education. In addition, each student prepares a professional-level 2D portfolio and a personal ID package (stationary, business cards, etc.) and is required to participate in the year-end portfolio show in conjunction with other art degree programs. Prerequisites: 10-207-131 and final semester status.

10-207-144 Advanced Animation Studio 2 3 credits
This is the second class in a 2-part comprehensive studio series. It is a project-based course in which students develop their own projects in consultation with Instructors and industry professionals. Extensive studio time provides advanced students with large blocks of Instructor and equipment access, and allows an in-depth study of particular aspects of digital 3D targeting the student's particular interests. Group study and interaction is encouraged and detailed job-tracking is required. Prerequisites: 10-207-131 and 10-207-140.

10-207-150 Animation Concepts 1 3 credits
Intensive study of the process of developing visual concepts for 3D execution. Course Traditional and digital drawing techniques cover the design of architectural, mechanical, vehicle, and other assets related to the creation of credible and functional 3D environments. Prerequisites: 10-207-103, 10-207-112 and 10-207-139.

10-207-151 Animation Concepts 2 3 credits
Intensive study of the process of developing visual concepts for 3D execution, with concentration on the development of character and creature ideas for 3D execution. Traditional and digital drawing techniques cover the design of functional body-mechanics, personality traits and other aspects related to creating the illusion of life. Prerequisites: 10-207-117 and 10-207-150.

Recommended Electives

10-207-152	Adv. Animation Workshop	1-2 credits
10-201-117	Illustrative Figure Drawing	3 credits

Career Potential:

- **Character Animator**
- **Concept Artist/Designer**
- **Storyboard Artist**
- **Animator, Modeler, Lighter or Illustrator in the following industries:**
- **Advertising**
- **Architecture**
- **Broadcasting**
- **Entertainment**
- **Game Design**
- **Instructional**
- **Medical and Scientific**
- **Multimedia Production**
- **Printing/Publishing**
- **Product Design Development**
- **Web Design**

Career opportunities in the animation field include: character animation, modeling, lighting, digital game production, illustration for print, architectural rendering, instructional animation, simulation animation for documentary and journalism.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Graphic Design & Illustration

Program Number: 10-201-1

Associate in Applied Arts Degree

Applied Arts Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Program

This program prepares students who are interested in a professional career in a variety of challenging areas for print media. The major career opportunities are graphic designer, production artist, or illustrator. Jobs are in advertising agencies, publishing companies, art studios, and advertising and art departments within companies. Graduates can also work as freelance artists. Some aptitudes necessary for success include aesthetic appreciation and creative imagination, visual acuity, attentiveness to detail, a willingness to complete tasks according to technical requirements, and an ability to work under pressure to meet deadlines. Previous courses that may be helpful include art and typewriting or computer skills. Students should have good command of the English language, having earned B grades in English courses.

Program Courses

10-201-102 Design Fundamentals **3 credits**
Students learn fundamentals of two-dimensional visual organization and problem-solving strategies for advertising layout, publication design, typographic and graphic design, and illustration.

10-201-103 Drawing Fundamentals **3 credits**
An introductory drawing class emphasizing sound craftsmanship and a study of basic freehand drawing skills. Includes the study of perspective, proportion, and light and shade. Also covers the construction of solid forms.

10-201-106 Illustration **3 credits**
Concentrates on creating reproducible line and continuous tone art in the areas of product, editorial and institutional illustration, in a variety of media both traditional and digital. Students are encouraged to develop problem-solving techniques in both technical and conceptual areas. Prerequisites: 10-201-112, 10-201-136, 10-203-130, 10-201-152 and 10-201-181.

10-201-112 Color Media **3 credits**
An understanding of color is achieved through the study and application of color systems and theory. A wide range of tools, techniques and media are used on a variety of assignments. Prerequisite: 10-201-102, 10-201-103, 10-201-136, and 10-201-181.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-201-102	Design Fundamentals	3	3-3
10-201-103	Drawing Fundamentals	3	3-3
10-201-136	Concept Development	3	3-3
10-201-181	Introduction to Computer Graphics	3	3-3
10-801-195	Written Communication	3	3-0
10-804-123	Math with Business Applications	3	3-0
	Semester Total	**18**	
Second Semester			
10-201-112	Color Media	3	3-3
10-201-151	Typographic Design	3	3-3
10-201-152	Drawing for Illustration	3	3-3
10-201-182	Applied Computer Graphics	3	3-3
10-203-130	Introduction to Digital Photography	2	2-2
20-809-276	Business Ethics*	3	3-0
	Semester Total	**17**	
SECOND YEAR			
First Semester			
10-201-106	Illustration	3	3-3
10-201-121	Graphic Design	3	3-3
10-201-128	Print and Design Production	3	3-3
10-201-177	Web Page Design 1	3	3-3
10-801-196	Oral/Interpersonal Communication	3	3-0
10-801-197	Technical Reporting **OR**	3	3-0
20-815-200	Intro to Art History **OR**	(3)	(3-0)
20-815-210	Art History: Modern Era **OR**	(3)	(3-0)
20-815-211	Art Survey: Women in Art	(3)	(3-0)
	Semester Total	**18**	
Second Semester			
10-201-153	Integrated Design	3	3-3
10-201-154	Design Project Management	3	3-3
10-201-162	Portfolio Preparation	2	2-2
10-201-184	Electronic Page Layout	2	2-2
10-809-197	Contemporary American Society	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Elective	1	1-0
	Semester Total	**17**	

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

* Other course options are available. See program advisor for information.

Program Courses (continued)

10-201-121 Graphic Design 3 credits
Develop design concepts as they relate to the professional design field. Assignments include the development of logos, corporate identity, symbols, icons, and page designs.
Prerequisites: 10-201-112, 10-201-151, 10-201-136 and 10-201-182.

10-201-128 Print and Design Production 3 credits
Practical training in layout and production of art. In a variety of increasingly complicated assignments, the student learns to solve realistic print design problems from rough layout through print-ready page production. Prerequisites: 10-201-112, 10-201-151, 10-201-136 and 10-201-182.

10-201-136 Concept Development 3 credits
Introduces exercises and processes to foster creativity and the development of unique ideas for graphic design and advertising applications. Emphasis is placed on improving research, brainstorming, writing, speaking and critical thinking skills. Working individually, in teams and in groups, students will come up with unexpected solutions to realistic and contemporary industry problems. Visual presentations cover a wide range of levels of finish and incorporate traditional and digital media and rendering techniques.

10-201-151 Typographic Design 3 credits
This course will explore the structure and form of type used in contemporary graphic design, the history of type, development, and terminology. Projects will incorporate both hand rendering and applied computer applications using Adobe InDesign, Illustrator and Photoshop. Prerequisites: 10-201-102, 10-201-103, 10-201-136 and 10-201-181.

10-201-152 Drawing for Illustration 3 credits
The focus of this course is on black and white illustration in a variety of media. Topics will cover creation of reproducible line and continuous tone art in the areas of product, editorial, and institutional illustration. Traditional figure-drawing techniques and approaches with a concern for illustrative usage and figure indication for design and layout situations will be incorporated. Prerequisites: 10-201-102, 10-201-103, 10-201-136 and 10-201-181.

10-201-153 Integrated Design 3 credits
Visual literacy and effective translation of complex information into informative graphics and illustration will be emphasized. Projects may involve television, environmental graphics, web graphics, as well as print. Prerequisites: 10-201-121, 10-201-128, 10-201-177 and 10-203-130.

10-201-154 Design Project Management 3 credits
Through assigned projects students will explore marketing, research, advertising concepts, resources, budgets, and timelines. Activities related to assigned projects may include tours, demonstrations, handouts, speakers, and independent research. Both traditional and electronic methods are explored. Techniques for successful project management, how to optimize your time and resources, and billable hours will be explored. Prerequisites: 10-201-121, 10-201-128 and 10-201-177 and 10-203-130.

10-201-162 Portfolio Preparation 2 credits
Students work to prepare a portfolio of their work for prospective employers. Students are supervised and assisted in choice and number of samples, and portfolio layout. Lectures are given on job interviewing and job markets. Faculty approval of a finished portfolio and internet presence is required for graduation. Prerequisite: 10-201-121, 10-201-128, 10-201-106, and 10-201-177; Students must be in their final semester of Graphic Design Program.

10-201-177 Web Page Design 1 3 credits
Students will create several web pages, increasing in complexity. This course teaches best practices for coding html and css, typography, graphics, animation, usability and accessibility. Students will be introduced to uploading files, server space and browser compatibility. Web page layout software is introduced. Exploration and analysis of existing sites on the web will also be a focus, and source for information. Prerequisite: 10-201-181.

10-201-181 Introduction to Computer Graphics 3 credits
Introductory course in electronic design, illustration, and photo retouch, using the Macintosh computer and peripherals. Software applications introduced include raster programs (e.g. Adobe Photoshop), vector programs (e.g. Adobe Illustrator) and page-layout programs (e.g. Adobe InDesign).

10-201-182 Applied Computer Graphics 3 credits
The students enhance their knowledge and skill in the use of design, illustration and page layout software through the creation of a variety of design and illustration projects. Emphasis on original, strong images and type integration, as well as preparing files for press. Prerequisites: 10-201-102, 10-201-103, 10-201-136 and 10-201-181.

10-201-184 Electronic Page Layout 2 credits
Emphasizes design and preparation of multiple-page publications incorporating text and graphic images using sophisticated page layout software (e.g., QuarkXPress, InDesign) on the Macintosh computer. Includes output of high-resolution printed pieces, and creation of interactive documents appropriate for viewing online. Prerequisites: 10-201-121, 10-201-128 and 10-201-177.

10-203-130 Intro to Digital Photography 2 credits
Provides an introduction to the photographic process through the use of digital cameras to produce images for presentations, the World Wide Web, and electronic publication. Covers basic principles of effective composition, light, exposure and control of motion and focus. Basics of portraiture and product photography are studied in a studio environment. Participants provide their own digital camera. Prerequisite: 10-201-181.

Recommended Electives

10-201-117	Illustrative Figure Drawing	3 credits
10-201-195	Advanced Web Page Design 1	2 credits
10-201-196	Advanced Web Page Design 2	2 credits
10-201-198	Applied Interactive Marketing Trends	2 credits
10-201-178	Web Animation and Illustration	2 credits
10-206-190	Advanced Web Animation	2 credits
10-206-129	Motion Graphics	3 credits
20-815-200	Intro to Art History*	3 credits
20-815-210	Art History: Modern Era*	3 credits
20-815-211	Art Survey: Women in Art*	3 credits

* May be substituted for Technical Reporting (10-801-197)

Career Potential:

- **Art Direction/Editing**
- **Web Page Design**
- **Graphic Design**
- **Illustration**
- **Package Design**
- **Product Design**
- **Advertising**
- **Publication Design**
- **Print Production**
- **Information Design**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Interior Design

Program Number: 10-304-1

Associate in Applied Arts Degree

Applied Arts Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Program

The Interior Design Program prepares students for entry-level residential design and sales positions in retail stores and design studios, and commercial design positions in office dealerships and corporate facilities.

Graduates of the Interior Design Program are employed by interior design firms, furniture stores, flooring stores, paint and decorating centers, building centers, kitchen and bath design firms, office dealerships and corporations as in-house interior designers.

Interior designers confer with clients to determine the purpose and function of the environment, style preferences, budget, types of construction, equipment to be installed and other factors that affect planning interior environments. They integrate findings with their knowledge of interior design and formulate plans to be practical, aesthetic and conducive to intended purposes, such as raising productivity or improving the life style of occupants. Interior designers advise clients on interior design factors, such as space planning, the layout and utilization of furnishings and equipment, color schemes and coordination, and the selection of interior components. They estimate material requirements and costs, prepare drawings and materials for presentation to the client for approval and coordinate the implementation of all phases of the design project.

Successful interior designers are creative and visually sensitive individuals who enjoy working with people and the components of interior design. They are organized and creative with the ability to follow through on all tasks, as well as effective sales-oriented communicators.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-304-100	Survey of the Interior Design Profession	1	1-0
10-304-102	Fundamentals of Design	3	2-3
10-304-104	Basic Architectural Drawing	3	2-3
10-304-105	Building and Furniture Construction	3	2-3
10-304-107	Interior Design Textiles	2	1-2
10-804-123	Math with Business Applications	3	3-0
	Semester Total	**15**	
Second Semester			
10-304-120	Advanced Architectural Drawing	2	1-3
10-304-122	Perspective Lab	1	0-2
10-304-124	Presentation Techniques	2	1-3
10-304-125	Space Planning	3	2-3
10-304-127	Materials and Finishes	2	2-3
10-304-129	History of Interior Design	3	3-0
10-801-195	Written Communication	3	3-0
20-809-276	Business Ethics*	3	3-0
	Semester Total	**19**	
SECOND YEAR			
First Semester			
10-304-133	Commercial Design	5	3-6
10-304-135	Lighting	2	1-3
10-304-142	Sales and Professional Practice	3	3-0
10-304-146	Trends and Issues in Interior Design	2	2-0
10-801-196	Oral/Interpersonal Communication	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Semester Total	**18**	
Second Semester			
10-304-132	Kitchen and Bath Design	5	3-2
10-304-143	Advanced Interior Design	3	2-3
10-304-145	Interior Design Internship	2	1-4
10-304-147	Portfolio Development	1	1-0
10-801-198	Speech	3	3-0
10-809-197	Contemporary American Society	3	3-0
	Semester Total	**17**	

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisites.

* Other course options are available. See program advisor for information.

Program Courses

10-304-100 Survey of Interior Design Profession 1 credit
Focuses on the interior design profession, including the definition and history of interior design, the personal qualities and aptitudes of the interior designer, and professional organizations. The broad range of career opportunities and tasks performed by the interior designer is also explored.

10-304-102 Fundamentals of Design 3 credits
The focus of this course is on the principles and elements of design that form the conceptual basis from which to solve and evaluate design problems. Corequisite: Concurrent enrollment in Survey of the Interior Design Profession, 10-304-100.

10-304-104 Basic Architectural Drawing 3 credits
This course will introduce students to basic manual and computer-aided drawing for interior design. Students will learn how to properly use equipment and produce two-dimensional drawings. Corequisite: concurrent enrollment in Survey of the Interior Design Profession, 10-304-100.

10-304-105 Bldg & Furniture Construction 3 credits
This course will provide the student with a foundation of knowledge to interpret blueprints and identify building construction methods, materials, and systems. Students will also examine building codes and basic furniture construction, as well as performance features. Corequisite: Concurrent enrollment in Basic Architectural Drawing, 10-304-104.

10-304-107 Interior Design Textiles 2 credits
Students study fibers, yarns, fabric construction and terminology, finishes, and performance criteria. Emphasizes specification of textiles for interior design applications.

10-304-120 Adv Architectural Drawing 2 credits
This course will build on the Basic Architectural Drawing coursework and further develop student skills in computer-aided drawing techniques for interior design. Computer-aided three-dimensional modeling will also be introduced and explored as a method to communicate design. Prerequisite: Basic Architectural Drawing, 10-304-104.

10-304-122 Perspective Lab 1 credit
The focus of this course is on the development of skill in sketching and drafting interiors in one and two point perspective and isometrics. Prerequisites: Fundamentals of Design, 10-304-102; and Basic Architectural Drawing, 10-304-104.

10-304-124 Presentation Techniques 2 credits
Students develop skill and speed in drawing, rendering, and board preparation for interior design presentations. Students gain awareness of the various media available and participate in the application of pencil and marker techniques. Corequisite: 10-304-122.

10-304-125 Space Planning 3 credits
Explores human factors, codes, regulations and standards, and barrier-free design as they relate to furniture arrangement and planning interior space. Projects take the student from the programming stage through the preliminary design of both residential and commercial spaces. Students use various problem-solving conventions and methods to aid in the exploration of design solutions. Prerequisites: Survey of the Interior Design Profession, 10-304-100; and concurrent enrollment in Perspective Lab, 10-304-122.

10-304-127 Materials and Finishes 2 credits
This course will focus on interior finish products and their applications. Students will learn to specify and calculate quantities of materials using industry standards. Prerequisites: Survey of the Interior Design Profession, 10-304-100; Basic Architectural Drawing, 10-304-104; and Interior Design Textiles, 10-304-107.

10-304-129 History of Interior Design 3 credits
This course will focus on periods of art, artists, architecture and furniture from Egyptian times to the 21st century.

10-304-132 Kitchen and Bath Design 5 credits
Focuses on designing kitchens and baths, including the specification of cabinets, countertops, appliances, fixtures, materials and finishes. In addition, students develop the CAD skills necessary to produce typical project drawings and documentation for a kitchen design problem using a kitchen cabinet software package. Prerequisites: Presentation Techniques, 10-304-124, Space Planning, 10-304-125, Materials and Finishes, 10-304-127 and Lighting, 10-304-135.

10-304-133 Commercial Design 5 credits
Focuses on the design, specification and documentation of commercial office spaces using conventional furniture and open office systems. Students apply their knowledge of materials, finishes, furniture, lighting and building construction through all phases of the design process. In addition, students further develop CAD skills necessary to produce project documentation and presentations for a comprehensive commercial design problem. Prerequisites: Advanced Architectural Drawing, 10-304-120; Presentation Techniques, 10-304-124; Space Planning, 10-304-125; Materials and Finishes, 10-304-127, and concurrent enrollment in Lighting, 10-304-135.

10-304-135 Lighting 2 credits
This course focuses on light sources, luminaire options, the quality and quantity factors of lighting specification, and the lighting plan and schedule. Students design and specify lighting plans. Prerequisite: Advanced Architectural Drawing, 10-304-120.

10-304-142 Sales and Professional Practice 3 credits
Covers essential interior design business practices and procedures, including business formations, fees, contracts, project management, business forms and record keeping. Professional work conduct and interior design sales techniques are also covered. Co-requisites: Commercial Design, 10-304-133.

10-304-143 Advanced Interior Design 3 credits
Students demonstrate their accumulated skills through the resolution of a comprehensive residential design project. Prerequisites: History of Interior Design, 10-304-129, Commercial Design, 10-304-133, Sales and Professional Practice, 10-304-142, and Trends and Issues in Interior Design, 10-304-146. Co-requisite: Kitchen and Bath Design, 10-304-132.

10-304-145 Interior Design Internship 2 credits
Students work in an interior-design-related business to gain practical knowledge of the interior design skills learned in the classroom. Prerequisite: Consent of the instructor and must be in final semester of the Interior Design program.

10-304-146 Trends & Issues in Interior Design 2 credits
This course provides the opportunity for students to learn and investigate current topics and trends in the interior design field. Prerequisite: Survey of Interior Design Profession, 10-304-100.

10-304-147 Portfolio Development 1 credit
This course will provide students with direction and guidance to develop and prepare a professional portfolio for both the Annual Portfolio Show and employment. Students will investigate a variety of manual and digital methods allowing for effective representation of their skills and strengths. Co-requisite: Advanced Interior Design, 10-304-143, and Kitchen and Bath Design, 10-304-132; mandatory participation in Annual Portfolio Show.

Note: All program courses require a "C" or better for graduation and prerequisite completion.

Career Potential:

- **Interior Designer**
- **In-Home Design/Sales Consultant**
- **Interior Design Consultant**
- **Kitchen and Bath Designer**
- **Corporate Designer**
- **Facilities Planner**
- **Sales Representative**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Photography

Program Number: 10-203-1

Associate in Applied Arts Degree

Applied Arts Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Program

The Photography Program is designed to equip the graduate with a solid foundation in commercial photography. Our courses will help you develop an individual style, give you hands on experience with the latest digital technologies and business skills necessary to succeed. The program is presented through a combination of classroom lectures and demonstrations, practical hands-on assignment work in studios and labs and real-world experience through internships and assignments that emulate contract work for clients. Graduates will be prepared to find jobs as assistants in commercial and portrait studios, digital technicians, staff members in corporate or government photography departments. Students will graduate with a professional portfolio showing prospective employers skills and capabilities learned during coursework in the photography program.

Program Courses

10-203-105 Photographic Composition 2 credits
A survey of composition as an important tool of the photographer that helps to establish purpose and meaning to visual statements. Includes an introduction to the history of photography and the field of professional photography through the work of some noted photographers. Written and photographic assignments are required.

10-203-107 Studio Photography 1 3 credits
Basic theory and practical application of the fundamentals of photography. Students will learn the basics of DSLR cameras, lenses, the light meter, digital exposure and capture, basic studio lighting with hot lights and studio equipment handling. Corequisite: 10-203-120

10-203-108 Studio Photography 2 3 credits
Continuation of Studio Photography 1 with emphasis on advanced studio strobe lighting techniques, and metering and exposure for extreme scenes. Students will also learn the differences between professional digital backs and DSLR systems through hands-on experience with each format. Prerequisites: 10-203-107 and 10-203-120 and 10-206-109.

10-203-109 Studio Photography 3 3 credits
This is an advanced level studio course offering students the opportunity to hone their skills. The course consists of 3 projects created by the instructor and 3 created by the student. Student may choose to create images that express their individual areas of interest. Images that are created in this course may be used in final portfolios. Prerequisites: 10-203-108 and 10-203-142.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-203-105	Photo Composition	2	2-0
10-203-107	Studio Photo 1	3	3-3
10-203-120	Lighting Techniques	2	2-2
10-206-109	Intro to Electronic Design	2	2-2
10-801-195	Written Communication	3	3-0
10-809-195	Economics	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Semester Total	**18**	
Second Semester			
10-203-108	Studio Photo 2	3	3-3
10-203-141	Color Photo 1	3	3-3
10-203-173	Photojournalism	2	2-2
10-206-115	Digital Media for Photographers	3	3-3
10-801-196	Oral/Interpersonal Communication	3	3-0
10-809-197	Contemporary American Society	3	3-0
	Semester Total	**17**	
SECOND YEAR			
First Semester			
10-203-121	Commercial Photo 1	3	3-3
10-203-124	Portrait Photography	2	2-2
10-203-142	Color Photo 2	3	3-3
10-203-134	Electronic Imaging	3	3-3
10-804-106	Intro to College Math	3	3-0
20-809-276	Business Ethics*	3	3-0
	Semester Total	**17**	
Second Semester			
10-203-109	Studio Photo 3	3	3-3
10-203-125	Business of Photography	1	2-0
10-203-126	Advanced Digital Studio Portrait	2	2-2
10-203-176	Photo Communication	2	2-2
10-203-185	Portfolio Preparation	2	2-2
10-203-174	Photography on Location	3	3-3
	Elective	2	E
	Semester Total	**15**	

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

* Other course options are available. See program advisor for information.

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Program Courses (continued)

10-203-120 Lighting Techniques 2 credits
Introduction to the laws of light, learning the qualities of natural and artificial light sources. Students will acquire specific skills in these areas: hard and soft light; lighting direction; incident and reflective exposure determination; lighting for shape and texture; lighting glassware; lighting reflective subjects; basic lighting for simple portraiture; and operation of professional lighting equipment in the studio. Corequisite: 10-203-107.

10-203-121 Commercial Photography 1 3 credits
Professional digital photography with an emphasis on the production of photographic illustration of high quality for use in advertising, promotion and print ad. It combines lectures and demonstrations along with practical experience. Students will polish their photographic skills while developing additional skills in commercial photography. Prerequisites: 10-203-108 and 10-203-141.

10-203-124 Portrait Photography 2 credits
Theory and principles of professional digital portrait photography. Studio and environmental portraiture. Emphasis on lighting, posing and character analysis. Prerequisites: 10-203-108 and 10-203-141 or consent of instructor.

10-203-125 Business of Photography 1 credit
This course is designed to help students understand the basic principles of creating a photo business. Throughout the semester students will research and create their own business plans. Areas such as sales revenue forecast, marketing, overhead and capital spending plan will be explored. Prerequisite: must be in final semester of required photo courses for the Photography Program.

10-203-126 Advanced Digital Studio Portrait 2 credits
Develops advanced studio skills utilizing high-end digital capture equipment for photo and prepress output in a variety of professional photographic venues. Emphasis on special projects and cooperative shooting situations with other programs using a wide variety of tools, materials and techniques. Prerequisites: 10-203-108, 10-203-121, 10-203-142 and 10-206-134.

10-203-134 Electronic Imaging 3 credits
This course explores advanced computer skills, issues and skills unique to electronic image handling, utilization of image enhancement software, operation of desktop scanners as input devices, preparation of image for the World Wide Web, and legal and ethical issues regarding electronic image handling and manipulation. Prerequisites: 10-206-109, 10-203-108 and 10-203-141.

10-203-141 Color Photography 1 3 credits
Basic introduction to additive and subtractive color theory using digital color principles. Digital image capture, manipulation and output will be covered, along with basic color management principles and techniques. Prerequisite: 10-203-107 and 10-206-109 or consent of instructor.

10-203-142 Color Photography 2 3 credits
Uses hands-on exercises and assignments, requiring students to apply basic principles and techniques of digital color workflow to real-world imaging situations. Students will also learn and apply advanced principles and techniques of digital color workflow, and create their first significant digital color print portfolio. Prerequisites: 10-203-141 and 10-203-108.

10-203-173 Photojournalism 2 credits
Photography for publication with the visual image used to relate events, ideas or circumstances. Students are exposed to techniques in which news stories can be communicated through visual images in print. Prerequisite: 10-203-107 or consent of instructor.

10-203-174 Photography on Location 3 credits
From portraits and fashion to architecture and product, working on location presents unique challenges and involves a broad base of knowledge and resources. This class will cover a wide range of information pertaining to working on location. With a heavy focus on lighting techniques, from on camera flash to full strobe set ups and the production side of location photography. Prerequisite: 10-203-121 and 10-203-134 and must be in the final semester of required photo courses for the Photography Program.

10-203-176 Photo Communication 2 credits
Exploratory in nature, with emphasis on personal projects and the development of an individual style and identity. Students will be required to produce their own web site, self-promotion pieces and a personal project such as a book of photographs. Prerequisites: 10-203-108, 10-206-134 and 10-203-142.

10-203-185 Portfolio Preparation 2 credits
This course teaches students how to assemble a professional photographic portfolio, showing prospective employers skills and capabilities learned during coursework in the Photography Program. Learning is enhanced via visits to the class by local photo professionals, who show their work to students and review student work. The Portfolio Show highlights the semester's efforts. Departmental approval of the finished portfolio is required. Prerequisite: must be in the final semester of required photo courses for the Photography Program.

10-206-109 Intro to Electronic Design 2 credits
Provides students with a working knowledge of the technical part of digital photography workflow, including the basic principles of working with Adobe Photoshop. Co-requisite: 10-203-107 and 10-203-120.

10-206-115 Digital Media for Photographers 3 credits
This course will explore the different kinds of digital media available to provide the photography student with additional tools and skills. The student will learn basic video camera techniques, video editing, sound capturing, DVD preparation and other creative software programs. This course is meant to prepare photo students for potential business applications that integrate sound, images and video. Prerequisites: 10-203-107 and 10-203-120.

Recommended Electives

10-203-129	Prof Nature/Conservation Photo	2 credits
10-203-131	Digital Photo 2	2 credits
10-203-199	Photography Internship	1 credit

Career Potential:

- **Architectural Photographer**
- **Industrial Photographer**
- **Photo Processing Lab Technician**
- **Corporate Staff Photographer**
- **Government Staff Photographer**
- **Commercial Studio Assistant**
- **Portrait Studio Assistant**
- **Film Production Crew**
- **Television Production Crew**
- **Photojournalism**
- **Sales**
- **Professional Photographer**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Printing

Program Number: 31-204-1

One-Year Technical Diploma

Applied Arts Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Program

The Technical Diploma Printing program offers the knowledge and skills required for entry level positions in the graphic arts industry. The printing process takes raw material and produces a finished printed product using technology. Students receive training in all steps using the sheet-fed offset lithographic reproduction process.

The printing industry includes Commercial Printing (general printing), Forms Printing, Packaging, and other trade services. Nationwide employment is just under one million people in just over 35,000 establishments located in communities of all sizes throughout the country.

Locally, printing companies range from small shops to those employing hundreds of employees. They manufacture a wide array of products including books, brochures, advertising, magazines, and packaging, to name a few. People in this field must adapt to rapid technological changes, applying their old knowledge to new processes throughout their career.

Positions call for a wide range of skills and aptitudes. The successful employee will be a detail-oriented, problem solving team player with good communication skills. Employment in the printing industry requires the ability to use a wide range of computer softwares, mechanical ability and the need to adapt to new technology as the industry evolves. Graduates can specialize in one or several areas after graduation.

Unique Requirements for Graduation

All courses must be completed with a GPA of 2.0 (C) or above to graduate from this program.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

			Hrs/week
First Semester		**Credits**	**Lec-Lab**
31-204-310	Softwares for Print Production 1	5	4-6
31-204-316	Prepress Production Procedures 1	3	2-4
31-204-318	Lithographic Press Systems 1	5	4-6
31-204-330	Finishing and Machine Basics	3	2-4
	Semester Total	**16**	
Second Semester			
31-204-312	Softwares for Print Production 2	5	4-6
31-204-326	Prepress Production Procedures 2	2	1-3
31-204-328	Lithographic Press Systems 2	5	4-6
31-204-340	Quality Control for Printing	1	1-1
31-204-342	Finishing and Fulfillment	2	1-3
31-204-394	Printing Seminar	1	1-1
	Semester Total	**16**	

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Program Courses

31-204-310 Softwares for Print Production 1 3 credits
Provides instruction in the many software programs required to move printing jobs through a digital prepress workflow. Emphasis is on page layout software, including QuarkXPress and InDesign, and on related programs necessary to create documents, such as Illustrator and Photoshop. File management, font management and image management are integrated into lab projects and outside assignments. Other related materials will also be covered through lecture and demonstration along with an overview of how printing processes achieve tonality and color reproduction. Projects started in this course will be completed in Prepress Production Procedures 1. Co-requisite: 31-204-316.

31-204-312 Softwares for Print Production 2 3 credits
Continuation of Software for Print Production 1. The many software programs introduced during the first semester including QuarkXPress, InDesign, Photoshop and Illustrator, will be used to construct more complex multicolored and full color documents for print. Lab project work, along with outside assignments, will be supported by lectures and demonstrations. An overview of preflighting concepts will be introduced. Recognizing the operations necessary to produce a printed piece, then using data to establish pricing are discussed. Other related material will be covered as needed. Students will be expected to complete a competency check list covering skills for all aspects of the coursework completed in the diploma program. Prerequisite: 31-204-310. Co-requisite: 31-204-326.

31-204-316 Prepress Production Procedures 1 3 credits
Introductory course in the computer-to-plate digital workflow necessary to produce offset printing plates for the pressroom. An overview of the prepress workflow will lead into making imposition layouts for basic running configurations in imposition softwares, proofing methods for customer approvals and making metal offset plates for pressrooms. Projects started in Softwares for Print Production 1 will move through this class creating printing plates to be printed in press classes. Co-requisite: 31-204-310.

31-204-318 Lithographic Press Systems 1 3 credits
A basic course in small offset lithographic press operation. Identification, selection and handling techniques for chemicals are emphasized. Instruction includes pressroom procedures, safety issues and OSHA standards, comparisons of different offset press configurations and their applications. Students operate offset presses to produce one and two color work created in Softwares for Print Production 1 and Prepress Production Procedures 1. Emphasis is on press adjustments for high quality offset lithography. Related topics include paper handling, operator press maintenance, and interpreting job specifications. An overview of the printing processes, past and present, most of which we cannot do in the laboratory is also incorporated. Topics covered are flexography, gravure, silkscreen, variable data toner based and inkjet, letterpress and its related operations of die cutting, foil stamping, and embossing. Other effects like thermography, coatings and others will be discussed. Students will also examine various raw materials and elements used for print production and analyze their environmental impact and related governmental regulations. Co-requisites: 31-204-316 and 31-204-330.

31-204-326 Prepress Production Procedures 2 2 credits
An intermediate course in computer-to-plate digital workflow. Instruction includes imposition configurations required to make plates for more complex jobs started in Software for Print Production 2. Upper level workflow issues will be integrated into class discussions, demonstrations and projects.
Offset printing plates created in this class will be printed in 2nd semester press classes. Prerequisite: 31-204-316. Co-requisite: 31-204-312.

31-204-328 Lithographic Press Systems 2 3 credits
Continuation of Lithographic Press Systems 1. Includes press and finishing work in small and medium offset press setup and operation. Topics include operator performed press maintenance, pressroom quality control issues, finishing operations, paper issues in the pressroom and basic press impositions. Students operate 2 color presses to print 2 to 4 color printed materials. Projects created in Softwares for Print Production 2 and Prepress Production Procedures 2 will be printed and finished in this class. Prerequisite: 31-204-318. Co-requisite: 31-204-326.

31-204-330 Finishing and Machine Basics 3 credits
Introductory class that covers a variety of subjects supportive to other courses in the program. Topics and projects cover paper basics, various measurement systems and precision measurement, binding processes, operating paper cutters, folders and shrink wrappers and other related equipment to finish printed jobs. Lab time will be available to complete related project work from other printing courses.
Co-requisite: 31-204-318.

31-204-340 Quality Control for Printing 1 credit
Familiarizes students with standards used in quality control throughout all production phases in the graphic arts industry. Topics cover developing standards, trade organizations and resources, accepted standards for print, color and color theory and applying standards to the production process.
Prerequisites: 31-204-310, 31-204-316, 31-204-318 and 31-204-330.

31-204-342 Finishing and Fulfillment 2 credits
Continuation of Finishing and Machine Basics. Students gain knowledge of production folding, packaging and shipping alternatives, conversion of flat sheets in to finished products, slitting, scoring, perforating, die-cutting and lenticular print and other specialty finishing operations. Postal regulations and concepts of designing for mailed pieces are discussed. Fulfillment topics of warehousing, inventories, drop shipments and specialty finishing are included. Coursework includes an overview of customer service concepts exploring mechanisms and mindsets to listen to customers to fulfill their expectations as well as discussions on Trade Customs and production standards. Industrial orientation concepts guide the students through the process required for success in the skilled trade job market and prepare them for work in an industrial setting. Prerequisite: 31-204-330. Co-requisite: 31-204-328.

31-204-394 Printing Seminar 1 credit
Students will select an instructor approved print related topic of interest and develop it to produce an oral presentation to the class. A written and oral plan will be presented at various points throughout the development process. Students will also prepare a professional portfolio independently using their own work produced during printing classes. An updated resume emphasizing career goals will also be required. An overview of production procedure activities to duplicate a commercial printing plant by printing live jobs as well as project work. Participation requires ability on all equipment within the printing laboratory. Prerequisites: 31-204-310, 31-204-316, 31-204-318 and 31-304-330.

Career Potential:

- **Customer Service/Job Entry**
  Works with sales personnel and customers to prepare jobs for production
- **Electronic Prepress Technician**
  Moves jobs in a digital workflow, doing color work for layouts, through plates for the pressroom
- **Press Technician**
  Sets up and operates sheet-fed presses or works on a press crew
- **Finishing Technician**
  Sets up and operates a variety of bindery and finishing equipment
- **Distribution and Value-Added Services**
  Sorts, prepares and/or delivers finished products and provides other customer-requested services

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Visual Communications – Media Design

Program Number: 10-206-1

Associate in Applied Arts Degree

Applied Arts Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 246-6003 or (800) 322-6282 ext. 6003

About the Program

The Visual Communications program is project and goal-oriented and provides digital skills in design creation, layout and presentation that are appropriate to the project's concept and goals. The program addresses the evolving nature of visual communications in a digital environment with a focus on the creation of a variety of media tools that include interactive media, presentation design, video production, webpage design and web animation.

Students interested in the Visual Communications program should have a strong interest in art and digital presentation media, an aptitude for problem solving, excellent aesthetic judgment and the ability to meet deadlines.

The Visual Communications program curriculum prepares graduates for entry-level employment in this rapidly changing field. Employment is typically found in graphic design firms, corporate art departments, educational media graphics departments, advertising agencies, publishing houses and pre-press companies. Companies that specialize in new media, such as website development, computer animation and interactive media are also sources of employment for graduates of the Visual Communications program.

Program Courses

10-201-177 Webpage Design 3 credits
During this course, students create several websites, increasing in complexity. Exploration and analysis of existing sites on the web will also be a focus, and source for information. This course uses HTML and focuses on basics, typography, graphics, page-layout and introduces how to create and incorporate animation, as well as survey automated webpage layout software. Prerequisite: 10-201-181.

10-201-181 Intro to Computer Graphics 3 credits
Introductory course in electronic design, illustration, photo manipulation and publishing, using the Macintosh computer and peripherals. Software applications introduced include raster (e.g. Adobe PhotoShop) and object-oriented programs (e.g. Adobe Illustrator) and page-layout programs (e.g. Adobe InDesign).

10-203-130 Intro to Digital Photography 2 credits
Provides an introduction to the photographic process through the use of digital cameras to produce images for presentations, the World Wide Web, and electronic publication. Covers basic principles of effective composition, light, exposure and control of motion and focus. Basics of portraiture and product photography are studied in a studio environment. Participants provide their own digital camera. Prerequisite: 10-201-181 or concurrent enrollment.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-201-181	Intro to Computer Graphics	3	3-3
10-203-130	Intro Digital Photography	2	2-2
10-206-107	Presentation Design	2	3-3
10-206-108	Digital Drawing and Design Fundamentals	2	3-3
10-206-133	Interface Design	2	2-2
10-801-195	Written Communication	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Semester Total	**17**	
Second Semester			
10-201-177	Webpage Design	3	3-3
10-206-130	Video Production	3	3-3
10-206-105	Communication Design	3	3-3
10-206-131	Sound Production Techniques	2	2-2
10-206-180	Advanced Media	3	3-3
10-801-196	Oral/Interpersonal Communication	3	3-0
	Semester Total	**17**	
SECOND YEAR			
First Semester			
10-206-120	Prod, Planning and Control	3	3-3
10-206-142	Digital Video Production/Editing	3	3-3
10-206-135	Multimedia Presentations	3	3-3
10-801-197	Technical Reporting	3	3-0
10-809-166	Intro to Ethics: Theory & Applications	3	3-0
10-809-197	Contemporary American Society	3	3-0
	Semester Total	**18**	
Second Semester			
10-206-125	Instructional Media Systems	3	3-3
10-206-129	Motion Graphics	2	2-2
10-206-110	Introduction to 3D	3	3-3
10-206-140	Portfolio Preparation	2	2-2
10-804-123	Math with Business Applications	3	3-0
	Electives	2	E
	Semester Total	**15**	

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Recommended Electives

10-206-104	Visual Comm.-Media Design Internship	1	0-4
10-206-145	Adv. Audio for Video Production (8 wk course)	1	1-1
10-206-146	Intro Video/Audio Web Integration (8 wk course)	1	1-1
10-201-195	Advanced Web Page Design (8 wk course)	2	2-2
10-201-195	Advanced Web Page Design 2 (8 wk course)	2	2-2

Program Courses (continued)

10-206-105 Communication Design 3 credits
Includes projects dealing with typographic and pictorial elements. Projects include single page layouts, mailer design and poster design, brochures, newsletters and letterhead and logo designs. Prerequisites: 10-201-181 and 10-206-108.

10-206-107 Presentation Design 2 credits
Emphasizes presentation design and graphics for projected media including design and use of PowerPoint. Design techniques for various types of data are included.

10-206-108 Digital Drawing and Design Fundamentals 2 credits
Provides involvement with the creative process, the traditional elements and principles of design and various techniques for solving two-dimensional design problems. These design concepts are taught on the computer and traditional media. Prerequisite: 10-201-181 or concurrent enrollment.

10-206-110 Introduction to 3D 3 credits
Uses computer 3D Modeling software to create visual displays in full three-dimensional space. An emphasis on 3D visualization, sketches and plan drawings provide preparation for constructing the 3D models. Prerequisites: 10-201-181, 10-206-180 and basic animation techniques.

10-206-120 Prod, Planning and Control 3 credits
The student develops a basic understanding of the media production process, budgeting, task analysis, time management and design team approaches. Prerequisites: 10-201-181, 10-206-107 and 10-206-133.

10-206-125 Instructional Media Systems 3 credits
Students are trained in the planning processes and media selection. Projects include graphic user interface, learning center design and design structures. Prerequisites: 10-201-181, 10-206-107, 10-206-120, 10-206-133 and 10-206-135.

10-206-129 Motion Graphics 2 credits
This is an introductory course in the creation of motion graphics for video and web applications. Students will use software to create composites incorporating animation and special effects. Storyboarding, file management, layering, animation, masks, lighting, three dimensional space, dynamic camera angles and various delivery methods will be covered in the course. Prerequisite: 10-201-181.

10-206-130 Video Production 3 credits
Video Production 1 surveys the principles of telecasting operations, including camera techniques, lighting, sound film, settings, scenery, floor directing, script, art, and on-camera performance. Lectures, reading, assignments and projects provide an understanding of the television industry, its history, development and principles of operation.

10-206-131 Sound Production Techniques 2 credits
Teaches the techniques of sound recording and multi-track track mixing for productions, including narration, location recording and music mixing. Digital sound mixing for computer presentations is included in this course. Prerequisites: 10-201-181 and 10-206-107.

10-206-133 Interface Design 2 credits
This course introduces students to the planning process of graphic interface design for multimedia formats. Topics to include learner style identification, information design, interactive relationships, interface layouts and beta testing. Prerequisite: 10-201-181 or concurrent enrollment.

10-206-135 Multimedia Presentations 3 credits
The design and production of media using computer animation, including computer presentation and interactive media design. Prerequisites: 10-203-130, 10-206-180, 10-206-137, 10-206-131 and 10-201-177.

10-206-140 Portfolio Preparation 2 credits
Students work to prepare a sample portfolio of their work for prospective employers. Students are supervised and assisted in the choice of samples, number of samples and design of portfolio. Lectures are given on job interviewing and job markets. Departmental approval of a finished portfolio is required for graduation. Prerequisites: 10-206-135 and students must be in the final semester of the Visual Communications Program.

10-206-142 Digital Video Prod and Editing 3 credits
Digital Video Production and Editing is an advanced course in documentary, short film and motion graphics production. Building on the skills learned in Video Production 1. This course emphasizes advanced editing and video graphics. Prerequisites: 10-201-181, 10-206-107, 10-206-130 and 10-206-131.

10-206-180 Advanced Media 3 credits
Students create visual solutions using electronic methods of image manipulation. Adobe Photoshop allows the students to create composite and retouch images suitable for strengthening their portfolios. Prerequisites: 10-201-181 and 10-206-105.

Recommended Electives:

10-206-104 Visual Communications-Media Design Internship 1 credit
Students work for a total of 72 hours in a professional setting to gain experience outside of the classroom. Prerequisites: 10-206-180, 10-206-120, 10-206-130, 10-206-135, 10-201-177, 10-206-107 and fourth semester standing.

10-206-145 Adv. Audio for Video Production 1 credit
This course covers the techniques used for the enhancement of video/audio production through the use of special effects, background noise elimination, and the addition of sound tracks and narratives. Prerequisites: 10-206-130 and 10-206-131.

10-206-146 Intro Video/Audio Web Integration 1 1 credit
This course will explore various types of digital video and audio techniques that can be integrated into web page design. Prerequisites: 10-206-130, 10-206-131, 10-206-135 and 10-201-177.

Career Potential:

- **Multimedia Design**
- **Interactive Design**
- **Webpage Design**
- **Video Production**
- **Computer Animation**
- **Display Design**
- **Media Design/ Production**
- **3-D Design**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Web Page Design

Program Number: 90-201-1

Certificate

Applied Arts Program Cluster

Center for Business and Applied Arts

Program offered at Madison campus.

For information call: (608) 246-6604 or (800) 322-6282 Ext. 6604

About the Certificate

This certificate is geared toward the student who has an Associate of Applied Arts Degree in Graphic Design or Visual Communications, or a degree in art/design or multi-media from another accredited college or university, or comparable work experience proven by their portfolio. Through coursework, students create multi-page websites featuring advanced level production techniques in Dreamweaver. Examples include frame-based sites, forms, layers, behaviors, javascript implementation and cascading style sheets. Using vector and raster illustration programs, students create original illustrations for use in web pages. Students also learn advanced-level animation and web interface design using Flash. Students acquire knowledge about project development and site management skills, as well as track interactive marketing trends. Web programming fundamentals and techniques will also be explored.

Prerequisite Course

10-201-177 Web Page Design 1 **3 credits**
Introduces the student to the Internet and the World Wide Web through a mixture of lecture, demonstration and hands-on use of the Internet. Exploration and analysis of existing sites on the web also will be the focus and source of information. This course uses HTML and web design software, and will focus on basics—typography, graphics and page layout. Prerequisite: 10-201-181 (or comparable course or work experience).

Certificate Courses

10-201-178 Web Animation/Illustration **2 credits**
Introduces students to the basics of two-dimensional animation for interactive media. Students are introduced to Adobe Flash and its illustrating and animating tools, as well as its integration with Adobe Illustrator and Photoshop to create simple animations for social media. Students are also introduced to the creation of interactive graphics using Adobe Fireworks. Prerequisite: 10-201-177.

10-152-165 JavaScript: An Introduction **1 credit**
An introduction to programming and object-oriented design concepts using the Java programming language. Students learn all the Java programming basics and use a simple text editor as a development environment. Design concepts and programming tools will be integrated with an emphasis on practical business solutions. Prerequisite: 10-201-177.

Curriculum

		Credits	Hrs/week Lec-Lab
First Semester			
10-201-178	Web Animation/Illustration	2	2-2
10-201-195	Advanced Web Page Design	2	2-2
10-201-198	Interactive Design Strategies	3	3-0
	Semester Total	**7**	
Second Semester			
10-206-190	Advanced Web Animation	2	2-2
10-152-165	JavaScript: An Introduction	1	1-1
10-201-189	Web Design Project Management	2	2-2
	Semester Total	**5**	

10-201-195 Advanced Web Page Design **2 credits**
This course focuses on the graphic preparation, design, and page layout skills necessary to produce full-functioning web pages. Students create several web sites incorporating complex features and skills. Practical exercises are implemented to focus on specific production techniques. Design will be emphasized through examples, critique, and demonstration. Information is delivered primarily through lecture, demonstration, and hands-on learning exercises. Prerequisites: 10-201-177.

10-201-189 Web Design Project Management **2 credits**
Real client projects will provide opportunities to work in teams, manage projects, conceptualize, organize and acquire content, develop architecture and assemble a production plan. Advanced web page layout features such as templates, libraries, use of CSS, implementation of javascript and spry widgets will be introduced. Prerequisites: 10-201-198 and 10-201-195.

10-206-190 Advanced Web Animation **2 credits**
As a continuation of 10-201-178, students create more advanced two-dimensional animation and interactivity for the web using software such as Adobe Flash and Fireworks. Techniques in 2D animation creation, scripting, design concepts, site organization, file optimization and uploading, and working with sound files are covered. Prerequisites: 10-201-177, 10-201-178.

10-201-198 Interactive Design Strategies **3 credits**
This course will flexibly address the rapidly changing web-based social media, marketing and advertising trends. Projects in this course will include online research, case studies and class exercises. Some of the topics covered in this course: search engine optimization, keyword research, link building strategies, web site indexing, web analysis techniques and social media advertising. Students will develop html based email campaigns, as well as create banner ads and placement ads for the internet and other interactive devices using appropriate graphics software.

Career Potential:

- **Web Page Design and Layout**
- **Web Illustration**
- **Web Animation**
- **Web Project Management**
- **Interactive Design**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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MADISON AREA | TECHNICAL COLLEGE

Real world smart.

Business Management

Program Number: 10-102-3

Associate in Applied Science Degree

Accounting and Finance Program Cluster

Center for Business and Applied Arts

Program offered at Madison, Portage and Reedsburg Campuses

Most courses offered at Fort Atkinson and Watertown Campuses

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Program

To be accepted into company training programs in middle management, or for running and operating a business, the Business Management program provides a well-rounded study in the fundamentals of business organization, finance, management and related studies. This program provides the student with training necessary for employment and advancement on the job in middle management and allied occupations. Graduates are also trained for positions in such specialty areas as sales, accounting or office operations.

Requirements for Admission

High school diploma, HSED or GED with a minimum grade point average of 2.0 or equivalent.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-101-111	Accounting 1-Principles	4	4-0
10-102-134	Business Organization and Management	3	3-0
10-801-195	Written Communication	3	3-0
10-804-144	Math of Finance	3	3-0
10-809-195	Economics	3	3-0
	Semester Total	**16**	
Second Semester			
10-101-113	Accounting 2–Principles	4	4-0
10-102-145	Introduction to Human Resources	3	3-0
10-102-150	Introduction to International Business	3	3-0
10-801-198	Speech	3	3-0
10-809-197	Contemporary American Society	3	3-0
	Semester Total	**16**	
SECOND YEAR			
First Semester			
10-101-118	Management Accounting	4	4-0
10-102-114	Business Communication	3	3-0
10-114-126	Corporate Finance	3	3-0
10-102-143	Management Techniques	3	3-0
20-809-276	Business Ethics **OR**	3	3-0
10-809-166	Intro to Ethics: Theory and Application	(3)	3-0
	Semester Total	**16**	
Second Semester			
10-102-104	Business Statistics	3	3-0
10-102-132	Leadership for Business Excellence	3	3-0
10-102-168	Employment Law	3	3-0
10-103-139	Excel-Intermediate	1	2.25-.75
10-104-102	Marketing Principles	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Semester Total	**16**	

Electives must be associate degree (100 level) or college transfer (200 level) courses.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite.

Graduation Requirement:
Please note: A minimum grade of C is required for all occupational specific courses in order to graduate.

Program Courses

10-101-111 Accounting 1–Principles 4 credits
Introduction to the field of accounting. The accounting cycle of journalizing transactions, posting, adjusting and closing entries, as well as the preparation of accounting statements is emphasized for service industries and merchandising concerns. Details of accounting for cash and receivables are studied. An introduction to a computerized accounting system is also included. Recommend concurrent enrollment in Math of Finance, 10-804-144.

10-101-113 Accounting 2–Principles 4 credits
Procedures of accounting for partnerships and corporations. Additional topics include fixed assets, current liabilities and payroll, long-term liabilities, investments, statement of cash flows, analysis of financial statements, and an introduction to cost accounting. Prerequisite: grade of C or better in Accounting 1-Principles, 10-101-111 and prerequisite or co-requisite: Math of Finance, 10-804-144.

10-101-118 Management Accounting 4 credits
Emphasizes the managerial use of accounting reports, the problem-solving functions of accounting in relation to current planning and control, performance evaluation, long-range planning, budgets and cost-volume-profit relationships. Prerequisite: Accounting 2-Principles, 10-101-113.

10-102-104 Business Statistics 3 credits
Introduces the theory of and application to basic statistical methods. Emphasizes solving practical business problems. Topics include basic measures, probability, sampling and time series analysis. Prerequisite: Excel–Beginning, 10-103-133 and recommend completion (grade of C or better) of Math of Finance, 10-804-144.

10-102-114 Business Communication 3 credits
Both written and verbal communications are studied. Applications pertaining to business communications and procedures are stressed.

10-114-126 Corporate Finance 3 credits
This intermediate-level course views finance from the perspective of the financial manager. Topics include techniques of financial analysis, forecasting and budgeting, operating and financial leverage, working capital management, the time value of money, cost of capital, long-term debt and stock financing, dividends and retained earnings. Students are expected to apply both principles of accounting and finance. Prerequisite: grade of C or better in Accounting 2–Principles, 10-101-113.

10-102-132 Leadership for Business Excellence 3 credits
The purpose of the course is to identify leadership approaches for guiding a work group or an entire enterprise. Topics covered include: strategic process management, manufacturing systems, operations strategy, product design, process technology selection, capacity planning, resource planning and scheduling, inventory control, project management and quality/productivity improvement tools and strategies. Prerequisites: Corporate Finance, 10-102-126, Business Organization and Management, 10-102-134 and Management Techniques, 10-102-143.

10-102-134 Business Organization and Management 3 credits
This survey course imparts an understanding of the economic and legal environment in which businesses operate, as well as an understanding of the organization and management of business enterprises. An emphasis is placed on business terminology and concepts.

10-102-143 Management Techniques 3 credits
Covers problems facing management and workers with special emphasis on supervisory personnel and their challenges. Management principles are applied to such topics as the relationship of management to the business, its employees, the owner, other customers and the community. Problem solving is emphasized.

10-102-145 Introduction to Human Resources 3 credits
Topics include: the nature of employee management, strategic human resource planning, equal employment opportunity, analyzing and staffing jobs, training and developing human resources.

10-102-150 Introduction to International Business 3 credits
Provides a basic understanding of the forces that affect business in an international environment. The following forces will be explored: economic theories, financial, dynamics of organization, socio-economics, physical, socio-cultural, political, legal, labor, and import/export practices. Sixteen different countries will be reviewed for influences on their business economy.

10-102-168 Employment Law 3 credits
Topics include: unemployment compensation laws; workers' compensation laws; hiring and firing practices; sexual harassment in the workplace; the Americans with Disabilities Act; and labor law basics under the National Labor Relations Act. Course examines current "black letter law" together with case decisions. Content is appropriate for persons whose career plans involve employee management.

10-103-139 Excel–Intermediate 1 credit
Work with financial functions, data tables, amortization schedules, hyperlinks, lists, templates, and multiple worksheets and workbooks. Prerequisite: Excel-Beginning, 10-103-133 or equivalent.

10-104-102 Marketing Principles 3 credits
This foundation course introduces students to the marketing process and how it operates in today's dynamic organizations. The entire marketing mix is examined on a broad scale. Topics include: market segmentation and targeting strategies, market research, consumer behavior, product development, pricing policies, distribution, and an overview of promotion. This basic course provides a comprehensive overview of the exciting world of marketing.

Additional Courses (if desired)

10-101-123	Tax 1	4 credits
10-101-137	Computerized Accounting Applications	3 credits
10-101-140	Accounting Business Internship	3 credits
10-102-130	Personal Finance	3 credits
10-102-135	Fundamentals of Project Management	3 credits
10-102-160	Business Law	3 credits
10-103-133	Excel-Beginning	1 credit
10-103-143	PowerPoint	1 credit

Career Potential:

- **Supervisor**
- **Management Trainee**
- **Manager**

With additional education and/or work experience, graduates may find employment as:

- **Administrative Assistant**
- **Executive Assistant**
- **Production Assistant**
- **Account Executive**
- **Lead Worker**
- **Owner/Operator**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Madison Area Technical College

Fashion Marketing

Effective: 2010-2011

Program Number: 10-104-4

Associate in Applied Science Degree

Business & Marketing Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 246-6486 or (800) 322-6282 Ext. 6486

About the Program

Fashion Marketing is a two-year associate degree program designed for people with a creative flair and an interest in business and fashion. The program presents exciting career opportunities for people who have the ability and interest to create, develop and promote new fashion products and services. Opportunities in retail, wholesale, manufacturing and related marketing fields are available to graduates of the program. Professional courses stress an understanding of marketing activities and knowledge of fashion products and practices. Study tours to markets and fashion centers such as Italy, New York, Chicago and Minneapolis as well as guest lecturers and seminars in and out of scheduled class time enrich class studies and enable students to explore career opportunities. Second-year students enroll in the Internship course during the summer semester and receive supervised work experience. Fashion students are also mentored by industry professionals.

Students take a variety of courses in Fashion Marketing, General Marketing, and Arts and Sciences. Sixty-seven credits are required for graduation. The program offers articulation agreements with many local high schools and transferability with some four-year colleges.

The Fashion Marketing Program is directed by an Advisory Committee of people from area businesses, including, Fair Indigo, Old Navy, The Boston Store, The Buckle, Lands End, Victoria's Secret, Macy's Aeropostale, Maurices, Wintersilks, Brava Magazine, and Terese Zache Designs. These companies employ many program graduates and often offer internships to Madison College students.

A Retail Management Certificate is also available. See the website (matcmadison.edu) for more information.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

			Credits	Hrs/week Lec-Lab
FIRST YEAR				
First Semester				
10-104-102	Marketing Principles		3	3-0
10-104-161	Marketing Technology Applications		3	2-2
10-104-195	Fashion Analysis		2	3-0
10-104-197	Apparel Marketing		3	3-0
10-104-198	Fashion CAD		1	1-0
10-801-195	Written Communication		3	3-0
10-809-199	Psychology of Human Relations		3	3-0
	Semester Total		**18**	
Second Semester				
10-104-104	Selling Principles		3	3-0
10-104-125	Principles of Advertising		3	3-0
10-104-194	Visual Merchandising*		3	3-0
10-104-196	Textiles*		2	2-0
10-804-123	Math with Business Applications		3	3-0
	Semester Total		**14**	
Summer Semester				
10-104-157	Fashion Internship		3	3-0
SECOND YEAR				
First Semester				
10-104-113	Leadership Strategies in Marketing		3	3-0
10-104-118	Store Operations*		3	1-6
10-104-123	Merchandise Planning and Control*		3	3-0
10-801-198	Speech		3	3-0
10-801-195	Economics		3	3-0
	Semester Total		**15**	
Second Semester				
10-104-103	Marketing Research		3	3-0
10-104-117	Store Management*		3	1-6
10-104-182	Portfolio Presentation/Job Shop		3	3-0
20-809-276	Business Ethics**		3	3-0
10-809-197	Contemporary American Society		3	3-0
	Elective		3	3-0
	Semester Total		**18**	

* Courses offered in semester shown only.

** Other course options are available. See program advisor for information.

Program Courses

10-104-102 Marketing Principles 3 credits
This foundation course introduces students to the marketing process and how it operates in today's dynamic organizations. The entire marketing mix is examined on a broad scale. Topics include: market segmentation and targeting strategies, market research, consumer behavior, product development, pricing policies, distribution and an overview of promotion. Provides a comprehensive overview of the exciting world of marketing.

10-104-103 Market Research 3 credits
Businesses today need current information on which to base their marketing decisions. Students gather marketing information from primary and secondary sources using online sources. Prerequisite: 10-104-102 and 10-104-161.

10-104-104 Selling Principles 3 credits
Acquaints students with the basic principles and applications of the sales process as they apply to industrial, wholesale and retail selling situations. Includes prospecting and qualifying, planning and pre-approaching, approaching the customer, the sales presentation/demonstration, handling objections, closing the sale and post-sale service and follow-up.

10-104-110 Supervision Principles 3 credits
Introduces the principles, methods and techniques of supervision and their application to case problems. Special attention is given to problem-solving, small group decision-making, teamwork and the supervisor-employee relationship.

10-104-117 Store Management 3 credits
Students in this course are responsible for managing Olivia's Gifts, a gift shop located on campus. Training in all aspects of store management with special emphasis in customer service, merchandising, financial planning and control, personnel, promotion, security, selling and sales management, and store layout and housekeeping.

10-104-118 Store Operations 3 credits
Students in this course are responsible for the operation of Olivia's Gifts. Training in all aspects of store operation with special emphasis on selling, merchandising, pricing, loss prevention and visual presentation is stressed. Students are required to attend at least one trade show during the semester to help select merchandise for the store.

10-104-123 Merchandise Planning and Control 3 credits
Students analyze the buying and merchandising functions in various types of organizations. The principles, procedures and techniques practiced by merchandisers are studied. Students may have the opportunity to interview a buyer, visit a market, participate in a floor move in a local business, compile a resource folder of relevant tools for buyers, and/or complete a computer simulation. Prerequisites: 10-104-194, 10-104-195, 10-104-196, 10-104-197, or instructor consent.

10-104-157 Fashion Internship 3 credits
Internship offers practical work experience to third and fourth semester students in the Fashion area. Experiences that cannot be acquired in the classroom environment provide the student with the opportunity to blend theory with practice in an approved work setting, offered in the summer semester.

10-104-161 Marketing Computer Applications 3 credits
Students acquire various technology skills and apply it to marketing-related business requirements. Through hands-on experience, students will complete projects related to word processing, spreadsheets, databases, presentations, web navigation and Internet communications. In addition, effective presentation techniques, proper file management and appropriate email etiquette are emphasized. Prerequisites: introduction to computers, basic keyboard or equivalent work experience.

10-104-182 Portfolio Presentation 3 credits
This course includes an overview of methods to searching for a position in the Fashion Marketing field. We explore on and off line methods of personal and academic assessment. Mock interviews, including a viewing of your portfolio work, will be video taped. Resume writing and personal correspondence are included in a personalized approach.

10-104-193 Introduction to Promotion 3 credits
Introduces students to the theory and practice of integrated marketing communications (IMC). Elements of the promotions mix are summarized including advertising, public relations and sales promotion. Characteristics of major media, including print and broadcast are examined. This course is an overview and is not intended for students enrolled in the Marketing program.

10-104-194 Visual Merchandising 3 credits
The principles and elements of design are incorporated into interior and exterior merchandise presentation. Coordination of the total sales promotion effort is emphasized. Students are required to build many types of displays.

10-104-195 Fashion Analysis 2 credits
Students work with the elements and principles of design as they relate to fashion promotion and products. Forecasting, creativity and a grasp of the influences and sources of design are major components of the course. Computer-aided design is used to enhance the course. Co-requisite: 10-104-198.

10-104-196 Textiles 2 credits
Focuses on the technical information regarding fabrics and fibers required by apparel managers and merchandisers, and its application to merchandise buying and sales staff training.

10-104-197 Apparel Marketing 3 credits
Students study the types of business enterprises, activities, operations, interrelationships and practices in the fashion industry. Careers in each of these areas are explored. This is a survey course with emphasis on terminology and key sources of information in the industry.

Recommended Electives

10-103-139	Excel–Intermediate	1 credit
10-104-107	Marketing Management	3 credits
10-104-124	Retail Management	3 credits
10-104-168	eCommerce in Marketing	3 credits
10-104-183	International Business in Fashion	2 credits
10-104-185	Customer Service Management	3 credits
10-104-186	History of Costume	3 credits

Also recommended, computer software courses.

Career Potential:

- **Marketing**
- **Merchandising**
- **Planning and Distribution**
- **Product Development**
- **Production**
- **Public Relations**
- **Sales Representative**
- **Store Operations**
- **Store Management**
- **Visual Merchandising**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Human Resources Certificate

Program Number: 90-102-1

Certificate

Accounting and Finance Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Certificate

The Human Resource Certificate is a certificate program for individuals interested in maintaining or pursuing careers in human resources departments. The certificate is designed for updating and/or broadening the knowledge of employees in the field of human resources and for individuals desiring to enter the field. Note: No application is required.

Unique Requirements for Completion

The certificate will be awarded upon completion of the requirements with a minimum of a 2.0 grade average and no course grade lower than a C. Students are responsible for contacting the Department upon completion of the required classes. Certificate will be awarded after completion of all requirements is verified.

Courses

10-102-145 Introduction to Human Resources 3 credits
Topics include: nature of human management, strategic human resource planning, issues in human resources, planning, equal employment opportunity, analyzing and staffing jobs, training and developing human resources.

10-102-147 Wage, Salary, and Benefits Administration 3 credits
Topics include: Basic systems and plans of compensating employees, incentives and executive compensation, principles and techniques in the administration of employee benefit programs.

10-102-148 Labor Relations 3 credits
Topics include: Employee rights and discipline, union-management relations, collective bargaining and grievance management, assessment systems.

10-102-168 Employment Law 3 credits
Topics include: Unemployment compensation laws, workers' compensation laws, hiring and firing practices, sexual harassment in the workplace, the Americans with Disabilities Act, and labor law basics under the National Labor Relations Act. Course examines current "black letter law" together with case decisions. Content is appropriate for persons whose career plans involve employee management.

Curriculum

Courses		Credits	Hrs/week Lec-Lab
10-102-145	Introduction to Human Resources	3	3-0
10-102-168	Employment Law	3	3-0
10-102-147	Wage, Salary, and Benefits Administration	3	3-0
10-102-148	Labor Relations	3	3-0
	Total	**12**	

Career Potential:

- **Human Resources Assistant**
- **Human Resources Representative**
- **Human Resources Clerk**
- **Human Resources Coordinator**
- **Human Resources Technician**

With additional education and/or experience, graduates may find employment as:

- **Human Resources Specialist**
- **Human Resources Analyst**
- **Human Resources Manager**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/10

MADISON AREA TECHNICAL COLLEGE

Real world smart.

Insurance Certificate

Program Number: 90-162-1

Certificate

Business and Marketing Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Certificate

According to the insurance industry, there is a lack of educational programs in Wisconsin geared toward a quick and easy method to prepare students for employment in the insurance arena.

To address this need, this Insurance Certificate utilizes accelerated learning to provide students with a basic understanding of the insurance industry and its products to enable entrance into the insurance workforce.

The certificate includes 10 credits of core insurance courses and 6 elective credits from either the Property and Casualty or Life and Health areas to enable specialization for a total of 16 credits.

This series of courses is a great addition for those who already have earned a Bachelor's Degree and would like a specific focus in insurance. Students who have experience in a different industry and are interested in a career change will find this program is an efficient and effective method to gaining insurance knowledge. Current or returning students with an Associate Degree will also find this certificate an efficient pathway into the insurance industry.

Many of the courses also qualify for continuing education credits for licensed intermediaries in Wisconsin. Students searching for continuing education credits or working towards one of the designation programs mentioned will find these certificate courses very beneficial.

Note: No college admission application is required.

Unique Requirements for Completion

Students may enroll in individual courses during the open enrollment period each semester. A grade of C or better is required for each course to receive the Insurance Education Certificate. Contact the Business and Applied Arts Center at (608-246-6003) with questions.

Curriculum

Core Courses		Credits	Hrs/week Lec-Lab
10-162-120	General Insurance Industry Overview	2	2-0
10-162-121	Customer Service in an Insurance Environment	3	3-0
10-162-122	Exemplary Communication Skills in Insurance	1	1-0
10-162-123	Insurance Careers	2	2-0
10-162-124	Technology in the Insurance Environment	2	2-0
	Electives	6	6-0
	Total	**16**	

Elective Courses – Property and Casualty Track
(select up to 6 credits from the list of courses below)

10-162-110	Insurance Pre-Licensing—Property	1	1-0
10-162-111	Insurance Pre-Licensing—Casualty	1	1-0
10-162-125	Commercial Insurance	3	3-0
10-162-126	Introduction to Claims	2	2-0
10-162-127	Introduction to Underwriting	2	2-0
10-162-129	Personal Lines Policies	2	2-0
10-162-128	Property & Casualty Production	3	3-0
10-162-133	Assessing and Managing Risk	3	3-0

Elective Courses – Life and Health Track
(select up to 6 credits from the list of courses below)

10-162-108	Insurance Pre-Licensing—Life	1	1-0
10-162-109	Insurance Pre-Licensing—Health	1	1-0
10-162-130	Life and Health Insurance Marketing	3	3-0
10-162-131	Principles of Life, Health & Annuities	2	2-0
10-162-132	Life & Health Insurance Underwriting	3	3-0
10-162-133	Assessing and Managing Risk	3	3-0

Courses

10-162-120 General Insurance Industry Overview 2 credits
This class will provide a foundation of the history of insurance and the general concepts behind the industry; what insurance does, how insurance works, the functions of rating, underwriting, surplus lines, and claims. The differences in types of insurers and marketing systems will be addressed. The course will also discuss some of the general insurance laws that apply to the industry in Wisconsin and how differences in state's insurance laws can impact agents and companies working throughout the country.

10-162-121 Customer Service in an Insurance Environment (LOMA ACS 100) 3 credits
This course will provide students with a foundation to provide insurance industry clients with exceptional customer service. How to listen and interact with customers, how to understand customer expectations and perceptions, communicating professionally, organizing the workday and developing a customer service strategic plan will be covered. Other topics include handling customer complaints, the importance of documentation, meeting compliance requirements, and using technology effectively to meet customer service goals.

10-162-122 Exemplary Communication Skills in Insurance 1 credit
This course provides the student with tools to improve communication skills in an insurance environment. The course will cover proper letter and memorandum preparation, e-mail and verbal communication with customers, co-workers, company representatives, and producers in the insurance industry. In addition, designing and delivering oral presentations will be covered with students presenting a communication topic to the class. Pre-requisite: Customer Service, 10-162-121.

10-162-125 Commercial Insurance - (AAI 82) 3 credits
This course provides a comprehensive study of policy language and coverage for Commercial General Liability, Commercial Auto, Worker's Compensation, Crime, Bonds, Umbrella, the BOP and Commercial Property. Pre-requisite: General Insurance Industry Overview, 10-162-120.

10-162-126 Introduction to Claims (AIC 33) 2 credits
The claim function, factors influencing claims, the steps involved in analyzing, negotiating, and litigating first and third party claims, and the basics of property and liability losses will be covered in this class.

10-162-127 Introduction to Underwriting (UNDWR 360) 2 credits
The course provides an overview on making underwriting decisions, the underwriter-producer relationship, and underwriting personal and commercial property and casualty insurance. . Pre-requisite: General Insurance Industry Overview, 10-162-120.

10-162-128 Property & Casualty Production (AAI 83) 3 credits
This class covers additional specifics of the producer-insurer relationship, the importance of the agency image, market segmentation, and target marketing.

10-162-123 Insurance Careers 2 credits
This course provides students with an overview of the opportunities available in the insurance industry. The class will discuss positions at both the company (underwriting, rating, claims, policy processing, etc.) as well as the agency level (account manager/customer service and producer). In addition, the program will help students to develop a resume,

10-162-123 Insurance Careers (continued) 2 credits
learn how to build a network in the industry, discuss proper interviewing techniques, and how to go after the position that best meets their career goals and desires. This class stresses interaction so that students can achieve the personal objectives. The class will include a minimum of one guest speaker from the insurance industry.

10-162-124 Technology in the Insurance Environment (AIT 132) 2 credits
This course will cover the importance of documentation, electronically viewing, saving, and sharing data, integration of automation into the overall business plan and in marketing. In addition, the reliance on information to be accurate, interfacing the agency and company information storage systems, and developing a plan to protect data against risks will be discussed. The course will also look further into using technology to assess risk and prevent Errors and Omissions within the insurance industry.

10-162-108 Insurance Pre-Licensing Life 1 credit
10-162-109 Insurance Pre-Licensing Health 1 credit
10-162-110 Insurance Pre-Licensing Property 1 credit
10-162-111 Insurance Pre-Licensing Casualty 1 credit

Each one of these courses meets the state educational requirements (8 hours of state laws and ethics and 12 hours of terminology and product knowledge) in preparation for taking the State of Wisconsin examination for licensure in that related line of business with the Office of the Commissioner of Insurance. Licensing in Wisconsin allows the agent to sell and service products and work directly with the consumer.

10-162-129 Personal Lines Policies (API 28) 2 credits
This course discusses the specific policy language and coverage for homes, autos, recreational vehicles, umbrella liability, flood, earthquake and watercraft. In addition, it provides a basic concept of general insurance terminology and the parts of the policy. . Pre-requisite: General Insurance Industry Overview, 10-162-120.

10-162-130 Life and Health Insurance Marketing (LOMA 320) 3 credits
This course discusses the function and importance of marketing Life and Health Insurance including target marketing, planning goals, sales and advertising.

10-162-131 Principles of Life, Health & Annuities (LOMA 280) 2 credits
This course focuses on the principles of individual and group health coverage, disability insurance, individual and group life insurance, paying life insurance proceeds, ownership rights, beneficiaries, and supplemental benefits of life insurance.

10-162-132 Life & Health Insurance Underwriting (LOMA UND386) 3 credits
In this class, students will be introduced to the fundamentals of risk selection in life and health insurance applications. It delves further into the job responsibilities of an underwriter, the legal aspects of underwriting group coverage, and the medical, financial, and personal factors that are assessed in underwriting individual applications

10-162-133 Assessing and Managing Risk (ARM 54) 3 credits
This course will serve as an elective for either the Life and Health track or the Property & Casualty track. Risk Management is a foundational concept in insurance today. The legal foundations of loss exposures, the risk management process, and risk management programs will be discussed for all areas.

Career Potential:

- **Customer Service**
- **Claims Assistant**
- **Underwriting Assistant**
- **Sales**

With additional education and/or experience, graduates may find employment as an:

- **Underwriter**
- **Claims Adjuster**
- **Account Manager**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev.03/10

Madison Area Technical College

Marketing

Effective: 2010-2011
Program Number: 10-104-3

Associate in Applied Science Degree

Business and Marketing Program Cluster

Center for Business and Applied Arts

Program is offered in traditional, compressed, online, hybrid and accelerated (Fastrack) formats at Madison campus (select courses in Fort Atkinson, Portage, Madison-West, and Watertown)

For information call: (800) 322-6282 Ext. 6003 or 6558 or (608) 246-6003; Marketing Fastrack Program (608) 246-6558; Associate Marketing Degree Online (920) 568-7233. Visit our program website at:
http://matcmadison.edu/plus/marketing

About the Program

Marketing is one of the most important areas of expertise for the next generation of business leaders. It is critical to the success of every organization — whether large or small, profit or nonprofit, product- or service-oriented. All organizations must identify and research target markets; determine customer needs; and establish how products and services can most effectively be created, distributed, priced and promoted.

Course formats include 16-week, compressed (8-week), online, hybrid, and accelerated options. Choose from a unique menu of options to meet *your* work and life schedule!

Online Associate Marketing Degree: Earn an Associate Marketing degree entirely online. Complete course requirements at your convenience. For more information, contact Carrie Andersen at (920) 568-7233 or Andersen@matcmadison.edu.

Fastrack Marketing degree: an *accelerated* learning option is available in Madison. Take classes one night a week and earn your degree in about two years! For more information, contact Holly Mercier at (608) 246-6558 or hmercier@matcmadison.edu.

Emphasis Area Curriculum Information
In the first and second semester of the second year, students will choose to take two courses in an emphasis area as listed (Advertising or Sales).

Advertising Emphasis Area
10-104-126 Publicity & Promotions Strategy (*offered in Fall Semester*)
10-104-181 Complete Campaigns (*offered in Spring Semester*)

Sales Emphasis Area
10-104-108 B2B Sales (*offered in Spring Semester*)
10-104-160 Sales Management (*offered in Fall Semester*)

Note:
- *The General Elective may be filled from a wide variety of college-wide classes and/or transfer credits.*
- *The Approved Marketing Elective must come from one of the following classes (please note that these classes are only offered once per year).*

Approved Marketing Electives

10-104-105	Information Marketing (Fall Semester)	3 credits
10-104-124	Retail Management (Spring Semester)	3 credits
10-104-165	Internship (offered in Summer)	3 credits
10-104-166	Innovation & Creativity (Spring Semester)	3 credits
10-104-169	Internet Marketing (Fall Semester)	3 credits
10-104-172	Job Shop (Fall & Spring Semester)	3 credits

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR

First Semester		Credits	Hrs/week Lec-Lab
10-104-102	Marketing Principles	3	3-0
10-104-104	Selling Principles	3	3-0
10-104-161	Marketing Technology Applications	3	3-0
10-801-195	Written Communication*	3	3-0
10-804-123	Math with Business Applications*	3	3-0
	Semester Total	**15**	

Second Semester

10-104-103	Marketing Research	3	3-0
10-104-112	Marketing Design Strategies	3	3-0
10-104-113	Leadership Strategies in Marketing	3	3-0
10-104-125	Principles of Advertising	3	3-0
10-801-198	Speech*	3	3-0
10-809-197	Contemporary American Society*	3	3-0
	Semester Total	**18**	

SECOND YEAR

First Semester

10-104-107	Marketing Management	3	3-0
10-104-180	International Marketing	3	3-0
10-809-199	Psychology of Human Relations*	3	3-0
10-809-195	Economics*	3	3-0
	Emphasis course #1 *(see left)*	3	
	Semester Total	**15**	

Second Semester

10-104-111	Marketing Trends and Topics	3	3-0
10-104-168	eCommerce in Marketing	3	3-0
10-809-166	Introduction to Ethics: Theory & Application*	3	3-0
	Approved Marketing Elective	3	3-0
	General Elective	3	E
	Emphasis course #2 *(see left)*	3	
	Semester Total	**18**	

Summer options: To reduce the number of credits per semester, many students consider an Interim or Summer session course. It is recommended that students plan to take elective credits or a general education course (see * courses above). Marketing program courses are offered occasionally to meet demand, but it varies from summer to summer.

* For the Associate Degree general education courses, **college transfer equivalents** are available. Please see assigned program faculty advisor for complete details. Students are advised to plan for college transfer possibilities **in advance** of starting the program. For the most accurate transfer information, directly contact the Admissions Office of the transfer school.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Have any questions?
Contact Hiep Van Dong, Marketing Lead Instructor
(608) 243-4376 or hvandong@matcmadison.edu
Office: Room 312A / Truax campus

Program Courses

10-104-102 Marketing Principles 3 credits
This foundation course introduces students to the marketing process and how it operates in today's dynamic organizations. The entire marketing mix is examined on a broad scale. Topics include: market segmentation and targeting strategies, market research, consumer behavior, product development, pricing policies, distribution and an overview of promotion. It provides a comprehensive overview of the exciting world of marketing.

10-104-103 Marketing Research 3 credits
Businesses today need current, accurate information upon which to base their decisions. In this class, students learn not only how to gather marketing information from primary and secondary sources using online and other sources, but also how to apply that information to make better marketing decisions. Prerequisites: 10-104-102 and 10-104-161.

10-104-104 Selling Principles 3 credits
Students are acquainted with the basic principles and applications of the sales process as they apply to industrial, wholesale and retail selling situations. Includes prospecting and qualifying, planning and pre-approaching, approaching the customer, the sales presentation/demonstration, handling objections, closing the sale and post-sale service and follow-up.

10-104-107 Marketing Management 3 credits
This course is an expanded look at critical issues/trends in the field of marketing. Importance is placed on understanding as well as analyzing the effect of issue/trends on companies and their marketing efforts. Developing skills in proposal writing and interpreting marketing information are other topics of this course. The culmination of the course is the creation of an in-depth marketing plan for a selected product, service or organization. Prerequisites: 10-104-102 and 10-104-161.

10-104-111 Marketing Trends and Topics 3 credits
This course content changes from semester to semester and is based on the hottest and most important marketing trends and topics. Students will hear from industry leaders, explore cutting-edge theories and practices and have an opportunity to explore trends in which they have a particular interest. Course should be taken in the fourth or final semester of study in the program.

10-104-112 Marketing Design Strategies 3 credits
This course provides participants with the opportunity to understand proven theories of marketing communication design principles and practices. Participants are challenged to create powerful marketing messages, by applying effective creativity and innovation techniques for appropriate audiences using current and emerging technologies. Prerequisite: 10-104-102.

10-104-113 Leadership Strategies in Marketing 3 credits
This course introduces participants to principles, methods and techniques of leadership and communications with applications to case studies. Special attention is given to problem solving, small group decision making, and teamwork.

10-104-124 Retail Management 3 credits
This course focuses on the concepts, theories, and hands on skills of managing a retail operation. Key areas of emphasis are management, operations, human resources, merchandising, loss prevention and the supply channel.

10-104-125 Principles of Advertising 3 credits
Students are introduced to the theory and practice of integrated marketing communications. All elements in the promotions mix are summarized but the major emphasis is on advertising. Students examine the characteristics of major media alternatives including radio, television, newspapers, magazines, outdoor, direct response and alternative media. Advertising research, planning and creativity are also explored and practiced. Prerequisite: 10-104-102.

10-104-161 Marketing Technology Applications 3 credits
Through hands-on experience, participants explore current and emerging technologies and its application to marketing requirements. In addition, participants learn effective presentation techniques, appropriate netiquette and the applications of transforming technologies. Prerequisites: Keyboarding, Introduction to Windows, File Management, Introduction to Word or equivalent experience.

10-104-168 eCommerce in Marketing 3 credits
This course provides participants with tools and opportunities to define eCommerce, examine how eCommerce is being conducted and managed, and explore major opportunities, limitations, issues and risks involved with conducting business over the Internet and on the web. Prerequisites: 10-104-102 and 10-104-161.

10-104-169 Internet Marketing 3 credits
This course provides a road map for marketers to navigate the digital economy. Critical skills include the ability to master proven Internet marketing principles and concepts, and the capacity to keep pace with technological advances and industry trends. This course focuses on a comprehension of Internet marketing theory and concepts; demonstrates how concepts are applied in the real world; and emphasizes the development of advanced Internet marketing skills.
Prerequisites: Introduction to computers, file management, keyboarding skills, email fundamentals, basic web-browsing, and MS Word or consent of instructor.

10-104-172 Job Shop 3 credits
Job Shop is an individualized approach to career planning for marketing students. Course includes a marketing employment overview, personal and academic assessment, and the creation of marketing-based resumes and letters. Students utilize online databases and websites to explore industries, companies and careers in the marketing field; prepare for a videotaped job interview; and complete a bottom-line simulation on financial planning. Course should be taken in the final semester of the marketing program.

10-104-180 International Marketing 3 credits
Students explore how marketing strategies and tactics must be managed and adapted for success in different cultural, economic, geographic and political environments around the world. Students will develop marketing and management skills and perspectives in order to work effectively in the global marketplace. Prerequisite: 10-104-102.

10-104-166 Innovation & Creativity 3 credits
This course provides an opportunity for students to gain an overview of the tools, techniques and processes of creativity and innovation as they are revealed in historical and current business and marketing practices. The student will become familiar with definitions, tools, profiles, case studies, individual and organizational examples of creativity and innovation in order to prepare them to add value in an organization within the competitive marketing environment where these skills are in demand.

10-104-105 Data Mining 3 credits
Matching demographic research with other quantifiable data is essential in making sure the cost of marketing is on budget. This class will example various research methods in attaining names and address for specific target markets to ensure that cost effective marketing channels can be achieved. Designing research-gathering projects, interpreting data, data mining, list merging and other ways to collect and process data and other information will be explored and put to use in marketing projects.

Career Potential:

- **Advertising Coordinator**
- **Customer Service Manager/Representative**
- **Marketing Assistant**
- **Buyer**
- **Sales/Marketing Manager**
- **Promotion Coordinator**
- **Sales Representative (inside and outside)**
- **Store Manager**
- **Market Research Assistant**
- **Account Executive**
- **Internet Marketing Assistant**

With additional education and/or work experience, graduate may find employment as:

- **International Sales Manager**
- **Public Relations Director**
- **Marketing and Promotion Manager/Director**
- **New Product Development Manager**
- **Market Research Analyst**
- **Brand or Product Manager**
- **Senior Manager/ Executive**
- **Internet Marketing Manager/Director**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Marketing – FASTRACK

Program Number: 10-104-3X

Associate in Applied Science Degree

Business and Marketing Program Cluster

Center for Business and Applied Arts

Program is offered in traditional, compressed, online, hybrid and accelerated (Fastrack) formats at Madison campus (select courses in Fort Atkinson, Portage, Madison-West, and Watertown)

For information call: (800) 322-6282 Ext. 6003 or 6558 or (608) 246-6003; Marketing Fastrack Program (608) 246-6558; Associate Marketing Degree Online (920) 568-7233.

About the Program

Marketing is one of the most important areas of expertise for the next generation of business leaders. It is critical to the success of every organization — whether large or small, profit or nonprofit, product- or service-oriented. All organizations must identify and research target markets; determine customer needs; and establish how products and services can most effectively be created, distributed, priced and promoted.

Course formats include 16-week, compressed (8-week), online, hybrid, and accelerated options. Choose from a unique menu of options to meet *your* work and life schedule!

Online Associate Marketing Degree: Earn an Associate Marketing degree entirely online. Complete course requirements at your convenience. For more information, contact Carrie Andersen at (920) 568-7233 or Andersen@matcmadison.edu.

Fastrack Marketing degree: an *accelerated* learning option is available in Madison. Take classes one night a week and earn your degree in about two years! For more information, contact Holly Mercier at (608) 246-6558 or hmercier@matcmadison.edu.

Emphasis Area Curriculum Information

In the first and second semester of the second year, students will choose to take two courses in an emphasis area as listed (Advertising or Sales).

Advertising Emphasis Area

10-104-126 Publicity & Promotions Strategy (*offered in Fall Semester*)
10-104-181 Complete Campaigns (*offered in Spring Semester*)

Sales Emphasis Area

10-104-108 B2B Sales (*offered in Spring Semester*)
10-104-160 Sales Management (*offered in Fall Semester*)

Note:

- *The General Elective may be filled from a wide variety of college-wide classes and/or transfer credits.*
- *The Approved Marketing Elective must come from one of the following classes (please note that these classes are only offered once per year).*

Approved Marketing Electives

10-104-105	Information Marketing (Fall Semester)	3 credits
10-104-124	Retail Management (Spring Semester)	3 credits
10-104-165	Internship (offered in Summer)	3 credits
10-104-166	Innovation & Creativity (Spring Semester)	3 credits
10-104-169	Internet Marketing (Fall Semester)	3 credits
10-104-172	Job Shop (Fall & Spring Semester)	3 credits

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

			Hrs/week
FIRST YEAR			
First Semester - Fall		**Credits**	**Lec-Lab**
10-104-102	Marketing Principles	3	3-0
10-104-104	Selling Principles	3	3-0
10-104-113	Leadership Strategies in Marketing	3	3-0
	Semester Total	**9**	
Second Semester - Spring			
10-104-112	Marketing Design Strategies	3	3-0
10-104-161	Marketing Technology Applications	3	3-0
10-104-180	International Marketing	3	3-0
	Semester Total	**9**	
Second Semester – Interim			
10-104-168	eCommerce in Marketing	3	3-0
Summer			
10-104-125	Principles of Advertising	3	3-0
SECOND YEAR			
First Semester - Fall			
10-104-103	Marketing Research	3	3-0
10-104-107	Marketing Management	3	3-0
10-104-111	Marketing Trends and Topics	3	3-0
	Semester Total	**9**	
Second Semester - Spring			
	Approved Marketing Elective	3	3-0
	Emphasis course #1 *(see left)*	3	3-0
	Emphasis course #2 *(see left)*	3	3-0
	Semester Total	**9**	

The following General Education and elective course requirements may be taken along with the marketing requirements or after these requirements have been completed:

10-801-195	Written Communication*	3	3-0
10-804-123	Math with Business Applications*	3	3-0
10-801-198	Speech*	3	3-0
10-809-197	Contemporary American Society*	3	3-0
10-809-199	Psychology of Human Relations*	3	3-0
10-809-195	Economics*	3	3-0
10-809-166	Introduction to Ethics: Theory & Application*	3	3-0
	General Elective	3	E
		24	

* For the Associate Degree general education courses, **college transfer equivalents** are available. Please see assigned program faculty advisor for complete details. Students are advised to plan for college transfer possibilities **in advance** of starting the program. For the most accurate transfer information, directly contact the Admissions Office of the transfer school.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Have any questions?

Contact Holly Mercier, Marketing Fastrack Instructor
(608) 246-6558 or hmercier@matcmadison.edu
Office: Room 211A / Truax campus

MADISON AREA | TECHNICAL COLLEGE

Madison Area Technical College

Marketing

Program Number: 10-104-3

Program Courses

10-104-102 Marketing Principles 3 credits
This foundation course introduces students to the marketing process and how it operates in today's dynamic organizations. The entire marketing mix is examined on a broad scale. Topics include: market segmentation and targeting strategies, market research, consumer behavior, product development, pricing policies, distribution and an overview of promotion. It provides a comprehensive overview of the exciting world of marketing.

10-104-103 Marketing Research 3 credits
Businesses today need current, accurate information upon which to base their decisions. In this class, students learn not only how to gather marketing information from primary and secondary sources using online and other sources, but also how to apply that information to make better marketing decisions. Prerequisites: 10-104-102 and 10-104-161.

10-104-104 Selling Principles 3 credits
Students are acquainted with the basic principles and applications of the sales process as they apply to industrial, wholesale and retail selling situations. Includes prospecting and qualifying, planning and pre-approaching, approaching the customer, the sales presentation/demonstration, handling objections, closing the sale and post-sale service and follow-up.

10-104-107 Marketing Management 3 credits
This course is an expanded look at critical issues/trends in the field of marketing. Importance is placed on understanding as well as analyzing the effect of issue/trends on companies and their marketing efforts. Developing skills in proposal writing and interpreting marketing information are other topics of this course. The culmination of the course is the creation of an in-depth marketing plan for a selected product, service or organization. Prerequisites: 10-104-102 and 10-104-161.

10-104-111 Marketing Trends and Topics 3 credits
This course content changes from semester to semester and is based on the hottest and most important marketing trends and topics. Students will hear from industry leaders, explore cutting-edge theories and practices and have an opportunity to explore trends in which they have a particular interest. Course should be taken in the fourth or final semester of study in the program.

10-104-112 Marketing Design Strategies 3 credits
This course provides participants with the opportunity to understand proven theories of marketing communication design principles and practices. Participants are challenged to create powerful marketing messages, by applying effective creativity and innovation techniques for appropriate audiences using current and emerging technologies. Prerequisite: 10-104-102.

10-104-113 Leadership Strategies in Marketing 3 credits
This course introduces participants to principles, methods and techniques of leadership and communications with applications to case studies. Special attention is given to problem solving, small group decision making, and teamwork.

10-104-124 Retail Management 3 credits
This course focuses on the concepts, theories, and hands on skills of managing a retail operation. Key areas of emphasis are management, operations, human resources, merchandising, loss prevention and the supply channel.

10-104-125 Principles of Advertising 3 credits
Students are introduced to the theory and practice of integrated marketing communications. All elements in the promotions mix are summarized but the major emphasis is on advertising. Students examine the characteristics of major media alternatives including radio, television, newspapers, magazines, outdoor, direct response and alternative media. Advertising research, planning and creativity are also explored and practiced. Prerequisite: 10-104-102.

10-104-161 Marketing Technology Applications 3 credits
Through hands-on experience, participants explore current and emerging technologies and its application to marketing requirements. In addition, participants learn effective presentation techniques, appropriate netiquette and the applications of transforming technologies. Prerequisites: Keyboarding, Introduction to Windows, File Management, Introduction to Word or equivalent experience.

10-104-168 eCommerce in Marketing 3 credits
This course provides participants with tools and opportunities to define eCommerce, examine how eCommerce is being conducted and managed, and explore major opportunities, limitations, issues and risks involved with conducting business over the Internet and on the web. Prerequisites: 10-104-102 and 10-104-161.

10-104-169 Internet Marketing 3 credits
This course provides a road map for marketers to navigate the digital economy. Critical skills include the ability to master proven Internet marketing principles and concepts, and the capacity to keep pace with technological advances and industry trends. This course focuses on a comprehension of Internet marketing theory and concepts; demonstrates how concepts are applied in the real world; and emphasizes the development of advanced Internet marketing skills.
Prerequisites: Introduction to computers, file management, keyboarding skills, email fundamentals, basic web-browsing, and MS Word or consent of instructor.

10-104-172 Job Shop 3 credits
Job Shop is an individualized approach to career planning for marketing students. Course includes a marketing employment overview, personal and academic assessment, and the creation of marketing-based resumes and letters. Students utilize online databases and websites to explore industries, companies and careers in the marketing field; prepare for a videotaped job interview; and complete a bottom-line simulation on financial planning. Course should be taken in the final semester of the marketing program.

10-104-180 International Marketing 3 credits
Students explore how marketing strategies and tactics must be managed and adapted for success in different cultural, economic, geographic and political environments around the world. Students will develop marketing and management skills and perspectives in order to work effectively in the global marketplace. Prerequisite: 10-104-102.

10-104-166 Innovation & Creativity 3 credits
This course provides an opportunity for students to gain an overview of the tools, techniques and processes of creativity and innovation as they are revealed in historical and current business and marketing practices. The student will become familiar with definitions, tools, profiles, case studies, individual and organizational examples of creativity and innovation in order to prepare them to add value in an organization within the competitive marketing environment where these skills are in demand.

10-104-105 Data Mining 3 credits
Matching demographic research with other quantifiable data is essential in making sure the cost of marketing is on budget. This class will example various research methods in attaining names and address for specific target markets to ensure that cost effective marketing channels can be achieved. Designing research-gathering projects, interpreting data, data mining, list merging and other ways to collect and process data and other information will be explored and put to use in marketing projects.

Career Potential:

- **Advertising Coordinator**
- **Customer Service Manager/Representative**
- **Marketing Assistant**
- **Buyer**
- **Sales/Marketing Manager**
- **Promotion Coordinator**
- **Sales Representative (inside and outside)**
- **Store Manager**
- **Market Research Assistant**
- **Account Executive**
- **Internet Marketing Assistant**

With additional education and/or work experience, graduate may find employment as:

- **International Sales Manager**
- **Public Relations Director**
- **Marketing and Promotion Manager/Director**
- **New Product Development Manager**
- **Market Research Analyst**
- **Brand or Product Manager**
- **Senior Manager/ Executive**
- **Internet Marketing Manager/Director**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Paralegal

Program Number: 10-110-1

Associate Degree

Business and Marketing Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Program

The two-year associate degree Paralegal Program prepares students for highly responsible entry-level positions as paralegals or legal assistants. Students take courses that provide them with the basic competencies to begin a career as a paralegal or legal assistant. Paralegals are not authorized to practice law.

The subjects covered in core course work are: ethics, legal procedures, the American legal system, delivery of legal services in law offices and related environments, the paralegal profession, legal research and writing, law-related computer skills, legal interviewing and investigation, and substantive areas of legal practice. The program assists students in acquiring these essential related competencies: critical thinking skills (analysis, judgment, research and problem-solving), communication skills (oral, written, non-verbal and interpersonal), computer skills, computational skills, understanding of ethics and organizational skills.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

			Hrs/week
FIRST YEAR			
First Semester		**Credits**	**Lec-Lab**
10-101-106	Accounting Concepts	3	3-0
10-110-141	Computer Applications-Legal	3	2-2
10-110-101	Introduction to Paralegalism and Legal Ethics	3	3-0
10-801-195	Written Communication	3	3-0
10-809-195	Economics	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Semester Total	**18**	
Second Semester			
10-110-102	Civil Litigation 1	3	3-0
10-110-104	Legal Research	3	3-0
10-801-196	Oral and Interpersonal Communication **OR**	3	3-0
10-801-198	Speech	(3)	(3-0)
10-809-197	Contemporary American Society	3	3-0
	Choose 1 Selective (see list)	3	S
	Semester Total	**15**	
SECOND YEAR			
First Semester			
10-110-103	Civil Litigation 2	3	3-0
10-110-105	Legal Writing	3	3-0
	Choose 1 of the following:		
10-804-144	Math of Finance **OR**	3	3-0
10-806-177	General Anatomy & Physiology **OR**	(4)	(3-1)
20-806-206	General Anatomy & Physiology	(4)	(3-1)
	Choose 1 Elective	3	E
	Choose 2 Selectives (see list)	6	S
	Semester Total	**18**	
Second Semester			
10-110-107	Legal Aspects of Business Organizations	3	3-0
10-110-142	Paralegal Internship	3	3-0
10-809-166	Intro to Ethics: Theory and Applications	3	3-0
	Choose 2 Selections (see list)	6	S
	Semester Total	**15**	

Keyboarding Exit Requirement: Students are required to pass a test which demonstrates keyboarding competency at 50 WPM with no more than 5 errors. This is verified by completion of a timed keyboarding test in the Madison College Business Open Lab.

Program Courses

10-110-101 Introduction to Paralegalism and Legal Ethics 3 credits
Provides students with an introduction to the paralegal profession, the American legal system, legal ethics, legal terminology, research, and the common law of contracts. Restricted to students admitted to the following program(s): 10-110-1 Paralegal.

10-110-102 Civil Litigation 1 3 credits
Outlines the initial stages of civil litigation, including initial client contact, investigation, pleadings, and motions.
Prerequisite: 10-110-101.

10-110-103 Civil Litigation 2 3 credits
Covers the civil litigation procedure during discovery, trial, and appeal. Prerequisite: 10-110-102.

10-110-104 Legal Research 3 credits
Provides students with an application of legal research techniques, using traditional and computer-assisted resources.
Prerequisite: 10-110-101.

10-110-105 Legal Writing 3 credits
Legal Writing is an advanced writing course concentrating on legal correspondence, forms, memoranda, and briefs.
Prerequisites: 10-110-104, and 10-801-140.

10-110-106 Family Law 3 credits
Family Law covers the basic legal concepts in the area of family relations, particularly divorce. Prerequisite: 10-110-101.

10-110-107 Legal Aspects of Business Organizations 3 credits
Acquaints the students with legal aspects involving the formation, operation, and dissolution of the five principal types of business organizations utilized in the United States. It also involves the study of the substantive law involving these organizations and the procedures required to conform to the law.
Prerequisite: 10-110-101.

10-110-110 Real Estate Law 3 credits
Includes drafting real estate descriptions, listing contracts, offers to purchase, deeds, land contracts, mortgages, foreclosure pleadings, transfer tax returns, and leases.
Prerequisite: 10-110-101.

10-110-114 Administration of Estates 3 credits
Basic legal concepts surrounding guardianship, wills, trusts, and intestacy, including probate forms and procedures as well as inheritance tax returns are covered in the Administration of Estates class. Prerequisite: 10-110-101.

10-110-115 Administrative Law 3 credits
Administrative Law is designed to acquaint students with the process by which government agencies make and administer rules and regulations as well as how agencies adjudicate cases and controversies involving those rules. Following an introduction to the administrative rulemaking and adjudication process, the course will examine and utilize the specific rules and procedures of various Federal and state agencies, primarily focusing on the rules and documents associated with Wisconsin's Workers Compensation Law. Prerequisite: 10-110-101.

10-110-122 Debtor and Creditor Relations 3 credits
A review of legal issues involving debtors and creditors issues including security interests, disclosure requirements, marital property law, third party rights and liabilities, collections procedures, garnishment, receivership, execution, and bankruptcy. Prerequisite: 10-110-101.

10-110-141 Computer Applications-Legal 3 credits
Provides the learner with skills to use computer applications typical to a law office including spreadsheets; database; e-mail; timekeeping and billing software; litigation management software; and the Internet. Pre-requisite: 10-110-101.

10-110-142 Paralegal Internship 3 credits
Students gain practical experience working in a legal environment under the supervision of an attorney or other qualified professional for a minimum of 140 hours. In addition, students meet one hour weekly to discuss legal office experiences and ethical considerations, learn effective job search techniques, and develop professional image. Prerequisites: 10-110-101; 10-110-104 and 10-110-105(or taken concurrently).

10-110-160 Employment Law 3 credits
Employment Law covers the analysis of federal and state laws governing employment relationships, job discrimination, sexual harassment, workplace privacy, labor standards, and human resource management. Prerequisite: 10-110-101.

10-110-168 Criminal Law – Paralegal 3 credits
Provides an introduction to substantive and procedural criminal law emphasizing the elemental analysis of criminal statutes, the drafting of prosecutorial documents, and the Constitutional rights of defendants. Prerequisite: 10-110-101.

10-110-170 Intellectual Property Law 3 credits
This course introduces paralegal students to the law of trademarks, copyrights, and patents. It covers the basic requirements for protecting these forms of intellectual property; identifies the sources of authority that govern intellectual property law; explains the types of rights in intellectual property that are available; introduces the concepts of infringement and defenses to infringement claims; and surveys of the types of remedies used to compensate an owner for infringement. Course is restricted to students admitted to the following programs(s): 10-110-1 Paralegal or 90-110-1, Paralegal Post-baccalaureate Certificate.

10-110-171 Law and Contemporary Problems 3 credits
This 3 credit legal specialty course addresses topic areas of current interest in the legal community and will vary by semester. Topic examples may include Immigration Law, Environmental Law, Real Estate contracts and construction liens, etc.
Prerequisite: Introduction to Paralegalism and Legal Ethics, 10-110-101.

Paralegal Selectives

10-110-106	Family Law	3 credits
10-110-110	Real Estate Law	3 credits
10-110-114	Administration of Estates	3 credits
10-110-115	Administrative Law	3 credits
10-110-122	Debtor and Creditor Relations	3 credits
10-110-160	Employment Law	3 credits
10-110-168	Criminal Law (Paralegal)	3 credits
10-110-170	Intellectual Property Law	3 credits
10-110-171	Law and Contemporary Problems	3 credits

Career Potential:

- **Law Office Paralegal**
- **Public/Government Paralegal**
- **Corporation Paralegal**
- **Trust Department Paralegal**
- **Real Estate Paralegal**
- **Law Office Manager**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Paralegal Post-baccalaureate Certificate

Program Number: 90-110-1

Certificate

Business and Marketing Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 246-6631, (608) 243-4233 or (800) 322-6282 Ext. 6631 or 4233

About the Program

A paralegal or legal assistant is a person qualified by education, training, or work experience who is employed or retained by a lawyer, law office, corporation, governmental agency or other entity to perform specifically-designated substantive legal work for which a lawyer is responsible. Paralegals are not authorized to practice law. The Post-baccalaureate Certificate in paralegal is appropriate for those persons who already have earned a bachelor's degree.

Unique Requirements for Admission

- Bachelor's degree or higher from an accredited institution (Transcripts to be submitted with application for admission via the program office.*)
- Ability to use Windows and Word proficiently.
- Attendance at Summer Orientation session.

Program Exit Requirement

- Keyboarding speed of 50 WPM with no more than five errors.

*Apply for this certificate directly through the program office. Enrollment through the college and the $30 enrollment fee are NOT required.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

First Semester		Credits	Hrs/week Lec-Lab
10-110-101	Introduction to Paralegalism and Legal Ethics	3	3-0
10-110-102	Civil Litigation 1	3	3-0
10-110-104	Legal Research	3	3-0
10-110-141	Computer Applications - Legal	3	2-2
	Electives	3	E
	Semester Total	**15**	

Second Semester			
10-110-105	Legal Writing	3	3-0
10-110-142	Paralegal Internship	3	3-0
	Electives	6	E
	Semester Total	**12**	

Keyboarding Exit Requirement: Students are required to pass a test that demonstrates keyboarding competency at 50 WPM with no more than 5 errors. This is verified by completion of a timed keyboarding test in the Madison College Business Open Lab.

Madison Area Technical College

Paralegal Post-baccalaureate Certificate

Program Number: 90-110-1

Program Courses

10-110-101 Introduction to Paralegalism and Legal Ethics 3 credits
Provides students with an introduction to the paralegal profession, the American legal system, legal ethics, legal terminology, research, and the common law of contracts. Restricted to students admitted to the following program(s): 10-110-1 Paralegal or 90-110-1, Paralegal Post-baccalaureate Certificate.

10-110-102 Civil Litigation 1 3 credits
Outlines the initial stages of civil litigation, including initial client contact, investigation, pleadings and motions. Prerequisite or concurrent enrollment in 10-110-101.

10-110-104 Legal Research 3 credits
Provides students with an application of legal research techniques, using traditional and computer-assisted resources. Prerequisite: 10-110-101.

10-110-105 Legal Writing 3 credits
Legal Writing is an advanced writing course concentrating on legal correspondence, forms, memoranda and briefs. Prerequisites: 10-110-104, and 10-801-140.

10-110-141 Computer Applications-Legal 3 credits
Provides the learner with skills to use computer applications typical to a law office including spreadsheets; database; e-mail; timekeeping and billing software; litigation management software; and the Internet. Pre-requisite: 10-110-101.

10-110-142 Paralegal Internship 3 credits
Students gain practical experience working in a legal environment under the supervision of an attorney or other qualified professional for a minimum of 140 hours. In addition, students meet one hour weekly to discuss legal office experiences and ethical considerations, learn effective job search techniques, and develop professional image. Prerequisites or concurrent enrollment: 10-110-101; 10-110-104; and 10-110-105.

Electives: Choose three courses from this list (9 credits):

10-110-103	Civil Litigation 2	3 credits
10-110-106	Family Law	3 credits
10-110-107	Legal Aspects of Business Organizations	3 credits
10-110-114	Administration of Estates	3 credits
10-110-115	Administrative Law	3 credits
10-110-122	Debtor and Creditor Relations	3 credits
10-110-160	Employment Law	3 credits
10-110-168	Criminal Law for Paralegals	3 credits
10-110-170	Intellectual Property Law	3 credits
10-110-171	Law & Contemporary Problems	3 credits

Career Potential:

- **Law Office Paralegal**
- **Public/Government Paralegal**
- **Corporation Paralegal**
- **Trust Department Paralegal**
- **Real Estate Paralegal**
- **Law Office Manager**

information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Property Management Certificate

Program Number: 90-194-1

Certificate

Business and Marketing Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Certificate

The Property Management certificate is ideal for individuals who enjoy blending knowledge of real estate, sales and customer service skills. The certificate is designed for candidates who desire knowledge and a career in property management or a field closely connected with property management.

The certificate is intended to provide students with the sales and broker pre-licensing education requirements which will prepare them to take the state licensing exam. The certificate offers a foundation in the areas of management, marketing and maintenance of real estate.

Individuals who complete the certificate generally work for real estate brokers and agents, lessors of real estate, real estate development companies, government agencies, and private corporations of commercial properties.

This certificate does not require an application to the college. Students register for individual courses during the open registration period each semester.

Unique Requirements for Completion

It is the student's responsibility to request the certificate from the Business and Applied Arts Center (608-246-6339) once all required classes have been completed and grades have been received. A grade of C or better is required in each course to award the certificate.

Completion of this certificate **does not** equate to certification in professional organizations. For additional information regarding credentials and memberships with professional real estate management organizations, refer to the Institute of Real Estate Management (IREM).

Curriculum

Courses		Credits	Hrs/week Lec
10-194-182	Real Estate Law*	4	4-0
10-194-185	Real Estate Brokerage*	2	2-0
10-194-190	Property Management 1	3	3-0
10-194-191	Property Management 2	3	3-0
10-194-195	Real Estate Internship	3	3-0
10-194-197	Marketing for Property Management	2	2-0
10-194-198	Maintenance for Property Management	2	2-0
	Total	**19**	

Courses should be taken in the order listed above.

*Real Estate Law and Real Estate Brokerage must be taken in the same semester. Property Management 1 may also be taken concurrently.

Madison Area Technical College

Property Management Certificate

Program Number: 90-194-1

Required Courses

10-194-182 Real Estate Law 4 credits
Designed to acquaint students with the field of real estate as well as with Wisconsin real estate law and to prepare them for the Wisconsin Real Estate Salesperson's Examination. It covers topics such as the law of agency, legal descriptions, real estate contracts, mortgages, land contracts, consumer-protection laws, landlord-tenant laws, fair-housing ordinances and various other subjects related to the real estate profession. It is particularly oriented toward Wisconsin laws. Also available in CD-ROM format.

10-194-185 Real Estate Brokerage 2 credits
Covers market analysis, sales, planning, staff compensation and sales management including selection, training and supervision. The course is oriented to real estate brokerage in Wisconsin and fulfills the educational requirement for the Real Estate Broker's License in Wisconsin.

10-194-190 Property Management 1 3 credits
Examines an overview of property management. Some of the topics explored include fair housing laws, leasing, managing an office, marketing, maintenance, property renovations, and security.

10-194-191 Property Management 2 3 credits
Further explores the various types of properties to manage (office, shopping center, hotel/motel, industrial, rural, etc.) and provides "real world" experience. Students will engage in independent and team projects evaluating "green" properties and visit off-campus venues such as a property management professional event.

10-194-195 Real Estate Internship 3 credits
Requires work experience within an approved organization as well as under the sponsorship of someone at the management level. The real estate intern is required to complete 144 hours of supervised work. The intern will complete a final work report at the completion of the semester while the sponsor will complete a job performance evaluation. Class time concentrates on the internship experience. The intern prepares a resume and develops a job strategy as a means of preparing for full-time work upon graduation.

10-194-197 Marketing for Property Management 2 credits
Explores marketing as it relates to property management in various arenas (residential, commercial, industrial, governmental, hotels, etc.). Topics such as marketing principles, market and property analysis, property maintenance, CAP rates, and advertising methods will be covered. Additional real estate topics will be included as necessary.

10-194-198 Maintenance for Property Management 2 credits
Gives an overview of maintenance and repair as it relates to property management. Students will learn and identify distinct differences of maintenance issues between residential and commercial properties. Checklists for preventative maintenance, which are a key component in maintaining a sound structure, will be developed.

Career Potential:

- **Property Manager**
- **Real Estate Agent**
- **Real Estate Broker**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Quality Management

Program Number: 90-185-1

Certificate

Business and Marketing Program Cluster

Center for Business and Applied Arts

Program offered online

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Program

This certificate features a course of study designed to teach skills that are necessary for implementing the concepts of quality improvement or continuing process improvement in a service, manufacturing or government organization. The program contains four related courses that are basic to the process of quality improvement. Upon completion of all four courses, the learner will receive 12 academic credits and a certificate that recognizes concentrated study in a particular field. It is not mandatory, but, ideally, the curriculum will be taken in sequence.

Program Courses

10-185-110 Managing for Quality 3 credits
Examines the manager's role in a quality-focused organization. Students will be introduced to the four basic functions of management as practiced in an environment that focuses on employee participation. The management philosophies of Crosby, Deming, and Juran will be presented. The concept of teams and teamwork, and variation and implementation strategies are introduced.

10-185-111 Understanding Organizational Change 3 credits
Analyze the process or organizational change. Shows students how to be agents for change, and how to deal with resistance to change. Students will understand how to implement and standardize project improvements. An organizational model for total quality improvement will be presented.

10-185-112 Employee Involvement 3 Credits
Explore the importance of groups in improving quality and productivity. The stage of group development and factors that affect group performance will be identified. Students will also be introduced to team building, team facilitation, and conflict resolution.

10-185-116 Intro to Quality Systems 3 Credits
In the course Intro to Quality Systems learners will be introduced to modern quality systems and their function as it relates to continuous improvement, lowering costs associated with waste, rework and process variation. Each learner will have the opportunity to practice planning, implementing, documenting and assessing quality improvements through the application of these concepts and accepted practices using their own work experience.

Curriculum

COURSES		Credits	Hrs/week Lec-Lab
10-185-110	Managing for Quality	3	3-0
10-185-111	Understanding Organizational Change	3	3-0
10-185-112	Employee Involvement	3	3-0
10-185-116	Intro to Quality Systems	3	3-0
	Total	**12**	

Career Potential:

- **Manager**
- **Supervisor**
- **Lead Worker**
- **Team Leader**
- **Team Facilitator**
- **Quality Inspector**
- **Quality Technician**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 04/10

Madison Area Technical College

Effective: 2010-2011

Real Estate

Program Number: 10-194-1

Associate in Applied Science Degree

Business and Marketing Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 258-2416 or (800) 322-6282 Ext. 2416

About the Program

There are numerous career opportunities in residential, commercial and industrial real estate for trained men and women. You may become a broker, appraiser, property manager or mortgage lender. Real estate includes the planning and developing of office buildings, industrial complexes, farms, planned recreational developments, public land acquisitions, shopping centers and the complex field of mortgage lending and finance.

This program explores the basics of the real estate market, property rights, ownership, construction, financing and brokerage as they relate to the American consumer.

Program Courses

10-102-160 Business Law 1 **3 credits**
This survey course covers legal principles used in the business world. Contracts, sales, bailments, agency, employment, property law, torts, criminal law, marital property and bankruptcy are emphasized. The course is taught on a level suitable for an associate degree student. Federal, state and case law serve as the basis of study.

10-104-102 Marketing Principles **3 credits**
This foundation course introduces students to the marketing process and how it operates in today's dynamic organizations. The entire marketing mix is examined on a broad scale. Topics include: market segmentation and targeting strategies, market research, consumer behavior, product development, pricing policies, distribution, and an overview of promotion. This basic course provides a comprehensive overview of the exciting world of marketing.

10-104-104 Selling Principles **3 credits**
This course acquaints the student with the basic principles and applications of the sales process as they may apply to industrial, wholesale and retail selling situations. This would include prospecting and qualifying, planning and pre-approaching, approaching the customer, the sales presentation/demonstration, handling objections, closing the sale and post-sale service and follow-up.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-104-102	Marketing Principles	3	3-0
10-104-161	Marketing Technology Applications	3	3-0
10-194-182	Real Estate Law (Salesperson Educational Requirement)	4	4-0
10-801-195	Written Communication	3	3-0
10-804-123	Math with Business Applications	3	3-0
	Semester Total	**16**	
Second Semester			
10-102-160	Business Law 1	3	3-0
10-104-104	Selling Principles	3	3-0
10-194-184	Real Estate Finance	3	3-0
10-194-185	Real Estate Brokerage (Broker Educational Requirement)	2	2-0
10-194-190	Property Management and Development 1	3	3-0
10-801-196	Oral/Interpersonal Communication	3	3-0
	Semester Total	**17**	
SECOND YEAR			
First Semester			
10-104-125	Principles of Advertising	3	3-0
10-194-186	Real Estate Appraisal 1 – Part A (Appraisal Licensure Educational Requirement)	4	4-0
20-809-276	Business Ethics*	3	3-0
10-809-195	Economics	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Semester Total	**16**	
Second Semester			
10-194-175	Real Estate Investment	3	3-0
10-194-189	Real Estate Appraisal 1 – Part B	4	4-0
10-194-194	Home Inspection	4	4-0
10-194-195	Real Estate Internship	3	3-0
10-809-197	Contemporary American Society	3	3-0
	Semester Total	**17**	

Program Courses (continued)

10-104-125 Principles of Advertising 3 credits
Introduces students to the theory and practice of integrated marketing communications. All elements in the promotions mix are summarized but the major emphasis is on advertising. Students examine the characteristics of major media alternatives including radio, television, newspapers, magazines, outdoor, direct response and alternative media. Advertising research, planning and creativity are also explored and practiced. Prerequisite: 10-104-102.

10-104-161 Marketing Technology Applications 3 credits
Through hands-on experience, participants will utilize advanced techniques and tools to search the Internet, manage spreadsheets, create presentations, manipulate relational databases, and are exposed to desktop publishing software. Participants are taught effective presentation techniques, appropriate email etiquette, and the applications of transforming technology. Prerequisites: Keyboarding, Introduction to Windows, File Management, Introduction to Word, or equivalent experience.

10-194-175 Real Estate Investment 3 credits
An in-depth introduction to principles of real estate investment. Compares real estate to other forms of investments, and teaches students how to calculate the benefits and determine the disadvantages of owning real estate. Subjects covered include tax laws (current and past), creative financing, ownership forms, limited partnerships, management practices, practical contractual language, the real estate exchange and several case studies. A real life course project is required wherein the student goes through the steps of acquiring an existing property and analyzes the outcome.

10-194-182 Real Estate Law 4 credits
Designed to acquaint students with the field of real estate as well as with Wisconsin real estate law and to prepare them for the Wisconsin Real Estate Salesperson's Examination. It covers topics such as the law of agency, legal descriptions, real estate contracts, mortgages, land contracts, consumer-protection laws, landlord-tenant laws, fair-housing ordinances and various other subjects related to the real estate profession. It is particularly oriented toward Wisconsin laws. Also available in CD-ROM format.

10-194-184 Real Estate Finance 3 credits
An analysis of the various aspects of real estate finance with an emphasis on the type of instruments used, sources of funds, procedures involved and the role of the federal government. The course includes numerous activities outside the classroom designed to demonstrate lending policies, problems and rules involved in financing real property, including residential, multi-family, commercial and special purpose properties.

10-194-185 Real Estate Brokerage 2 credits
Covers market analysis, sales, planning, staff compensation and sales management including selection, training and supervision. The course is oriented to real estate brokerage in Wisconsin and fulfills the educational requirement for the Real Estate Broker's License in Wisconsin.

10-194-186 Real Estate Appraisal 1—Part A 4 credits
This course will cover the following topics in the Appraisal Licensure process: Basic Appraisal Principles, Basic Appraisal Procedures and Market Analysis & Highest/Best Use.

10-194-189 Real Estate Appraisal 1—Part B 4 credits
This course will cover the following topics in the Appraisal Licensure process: Residential Site Valuation and Cost Approach; Residential Sales Comparison and Income Approaches; residential Report Writing and Case Studies; and Uniform Standards of Professional Appraisal Practice (USPAP)..

10-194-190 Property Management and Development 3 credits
Provides a practical, hands-on approach to the process of managing real estate. Major topics include an overview of the rental, accounting, maintenance and information functions of the property manager. Also included is information on condominiums, low-income housing and the construction process.

10-194-194 Home Inspection 4 credits
Covers the residential inspection process from start to finish and may be used as an inspector's guide in the field. Home Inspection is an art of identifying problem areas through observation. The course deals with various elements of a home including soils, foundation, construction, plumbing and roofing. The course also deals with changes in public policy regarding home inspectors.

10-194-195 Real Estate Internship 3 credits
Requires work experience within an approved organization as well as under the sponsorship of someone at the management level. The real estate intern is required to complete 144 hours of supervised work. The intern will complete a final work report at the completion of the semester while the sponsor will complete a job performance evaluation. Class time concentrates on the internship experience. The intern prepares a resume and develops a job strategy as a means of preparing for full-time work upon graduation.

Career Potential:

- **Assessor/Home Inspector**
- **Property Manager**
- **Real Estate Appraiser**
- **Loan Officer**
- **Real Estate Broker**
- **Real Estate Salesperson**
- **Rental Agent**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Retail Management Certificate

Program Number: 90-104-4

Certificate

Business and Marketing Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Certificate

The Retail Management certificate is designed to update and/or broaden the knowledge of employees in the field of retail management. Ideal candidates would be students currently working in retail, food service, or other sales industry positions or have other experiences in one of these fields.

The certificate will acquaint students with the various job duties and work ethic involved with working in the retail industry. Students will be introduced to standard industry reports that are used to support recommendations for improvement relating to operations, finance, human resources, and merchandising. Students will increase their skills and confidence in the areas of supervising, hiring, training, and providing leadership effectively.

This certificate does not require an admission application to the college. Students register for individual classes during the open registration period each semester. Classes are available in hybrid or face-to-face format.

This certificate does not require an application to the college. Students register for individual courses during the open registration period each semester.

Unique Requirements for Completion

It is the student's responsibility to request the certificate from the Business and Applied Arts Center (608-246-6339) once all required classes have been completed and grades have been received. A grade of C or better is required in each course to award the certificate.

Curriculum

Courses		Credits	Hrs/week Lec
10-104-124	Retail Management	3	3-0
10-196-191	Principles of Supervision	3	3-0
10-104-123	Merchandising Planning & Control*	3	3-0

In addition, take one of the following courses:

10-104-182	Portfolio Presentation **OR**	3	3-0
10-104-194	Visual Merchandising**	3	3-0
	Total	**12**	

Courses should be taken in the order listed above. Retail Management must be taken first.

*This course is currently offered only in the fall semester.
**This course is currently offered only in the spring semester.

This certificate may be offered beginning in the spring semester of 2010 in an accelerated method for a cohort group. For more information, contact Betty Hurd at 608-246-6486 or bhurd@matcmadison.edu.

MADISON AREA TECHNICAL COLLEGE

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Retail Management Certificate

Program Number: 90-104-4

Required Courses

10-104-123 Merchandise Planning & Control 3 credits
Students analyze the buying and merchandising functions in various types of organizations. The principles, procedures and techniques practiced by merchandisers are studied. Students may have the opportunity to interview a buyer, visit a market, participate in a floor move in a local business, compile a resource folder of relevant tools for buyers, and/or complete a computer simulation. Prerequisites: 10-104-194, 10-104-195, 10-104-196, 10-104-197, or instructor consent. Prerequisites will be waived for certificate students. Contact the department office (608-246-6003) to register for this class.

10-104-124 Retail Management 3 credits
Upon successful completion of this course, the student should be able to describe and analyze retail store organization and operation including customer markets, store location and design, human resource management, merchandise planning and control, and retail promotion.

10-104-182 Portfolio Presentation 3 credits
This course includes an overview of methods to searching for a position in the fashion marketing field. We explore on and off line methods of personal and academic assessment. Mock interviews, including a viewing of your portfolio work, will be video taped. Resume writing and personal correspondence are included in a personalized approach.

10-104-194 Visual Merchandising 3 credits
The principles and elements of design are incorporated into interior and exterior merchandise presentation. Coordination of the total sales promotion effort is emphasized. Students are required to build many types of displays.

10-196-191 Principles of Supervision 3 credits
The learner applies the skills and tools necessary to perform the functions of a front line manager. Each learner will demonstrate the application of strategies to make the transition to a contemporary supervisory role including: operations planning and analysis, delegation, staffing, problem solving, motivation, training, leadership and performance assessment.

Career Potential:

- **Assistant Store Manager**
- **Store Manager**
- **Retail Human Resources Manager**
- **Retail Operations Manager**
- **Retail Loss Prevention Manager**

With additional education and/or experience, graduates may find employment as:

- **Store Owner**
- **Retail Buyer**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Sales Academy Certificate

Program Number: 90-104-2

Certificate

Business and Marketing Program Cluster

Center for Business and Applied Arts

Program offered at Madison and Fort Atkinson Campuses

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Certificate

The Sales Academy Certificate is a certificate program for individuals interested in maintaining or pursuing careers in the marketing/sales industry. The certificate is designed for updating and/or broadening the knowledge of employees in the field of Marketing with an emphasis in Selling. This certificate does not require an application to the college. Students register for individual courses during the open registration period each semester.

Unique Requirements for Completion

It is the student's responsibility to request the certificate from the Business and Applied Arts Center (608-246-6339) once all required classes have been completed and grades have been received. A grade of C or better is required in each course to award the certificate.

Curriculum

Courses		Credits	Hrs/week Lec
10-104-104	Selling Principles	3	3-0
10-104-108	Business to Business Sales	3	3-0
10-104-124	Retail Management	3	3-0
10-104-160	Sales Management	3	3-0
	Total	**12**	

Courses

10-104-104 Selling Principles 3 credits
Acquaints students with the basic principles and applications of the sales process as they apply to industrial, wholesale and retail selling situations. Includes prospecting and qualifying, planning and pre-approaching, approaching the customer, the sales presentation/demonstration, handling objections, closing the sale and post-sale service and follow-up.

10-104-108 Business to Business Sales3 credits
This advanced sales class explores the world of business-to-business selling. Topics explored include Negotiation Skills, Territory Management, Prospecting/Qualifying, Consultative Sales, Trade Show Selling, Relationship Building and Selling in the E-Business Realm. Case studies, role plays and sales exercises will all be practiced to broaden and deepen selling skills. The course is recommended for both new sales professionals and is a perfect refresher or skill-building course for seasoned veterans.

10-104-124 Retail Management 3 credits
This course focuses on the concepts, theories, and hands on skills of managing a retail operation. Key areas of emphasis are management, operations, human resources, merchandising, loss prevention and the supply channel.

10-104-160 Sales Management 3 credits
The role of the Manager in the Sales process is explored in this advanced sales class. Creating a sales program, developing your sales force, motivating sales people, and developing companies to be more selling focused will all be explored through research, case studies, practical applications and projects. Sales skills will be enhanced though the role of a strong Sales Manager.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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MADISON AREA | TECHNICAL COLLEGE

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Effective: 2010-2011

Small Business Entrepreneurship

Program Number: 31-145-1

One-Year Technical Diploma

Business and Marketing Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 243-4321, (608) 246-6560 or (800) 322-6282 Ext. 4321 or 6560

About the Program

The Small Business Entrepreneurship Program provides prospective small-business owners/entrepreneurs with the principles involved in planning and operating a small business. Attention is given to small business appraisal and opportunities; developing a written business/marketing plan; and advertising, public relations, direct mail and sales promotion plans. Marketing concepts include planning, forecasting, segmentation, product strategy, product mix, pricing and distribution. The program also provides an introduction to the basic principles, concepts and theories of business and non-business selling, and their application to an actual sales presentation. Special attention is given to personal development and self-image concepts.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-145-105	Operations Management	3	3-0
10-145-106	Small Business Marketing/Promotion	3	3-0
10-104-161	Marketing Technology Applications	3	3-0
10-104-185	Customer Service Management	3	3-0
10-801-195	Written Communications	3	3-0
10-804-123	Math with Business Applications	3	3-0
	Semester Total	**18**	
Second Semester			
10-101-106	Accounting Concepts	3	3-0
10-104-104	Selling Principles	3	3-0
10-196-191	Principles of Supervision	3	3-0
10-145-102	Small Business Development and Planning	3	3-0
10-145-108	Field Experience Seminar	2	1-8
10-809-199	Psychology of Human Relations	3	3-0
	Semester Total	**17**	

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Program Courses

10-101-106 Accounting Concepts 3 credits
Surveys accounting principles and practices with an emphasis on interpretation, rather than preparation, of financial statements. Presents basic business terminology, cash basis and accrual basis accounting, ratio analysis, payroll and budgeting. This class is not for students majoring in accounting.

10-104-161 Marketing Technology Applications 3 credits
Through hands-on experience, participants will utilize advanced techniques and tools to search the internet, manage spreadsheets, create presentations, manipulate relational databases and are exposed to desktop publishing software. Participants are taught effective presentation techniques, appropriate email etiquette and the applications of transforming technology. Prerequisites: Keyboarding, Introduction to Windows, File Management, Introduction to Word or equivalent experience.

10-145-102 Small Business Development and Planning 3 credits
Provides an introduction to prospective small business owners to the principles involved in planning and operation. Attention is given to small business appraisal and opportunities. Emphasis will be placed on factors that contribute to a successful business operation.

10-104-104 Selling Principles 3 credits
Acquaints students with the basic principles and techniques of the sales process as they may apply to professional selling situations. This would include prospecting and qualifying, planning and pre-approaching, approaching the customer, the sales presentation/demonstration, handling objections, closing the sale, service and follow-up.

10-104-185 Customer Service Management3 cred
Examines the general state of customer service in organizations for both internal and external customers. Explores how a business can enhance their competitive position by adopting and implementing a variety of strategic service initiatives. Topics range from practical communication skills to analyzing strategies used by top companies.

10-145-105 Operations Management 3 credits
Small-business management strategies are applied to policies and operations. Included are applications to budgeting, marketing potentials, forecasting, layout, staffing, work flow, scheduling and general business applications. Ecommerce is also explored.

10-145-106 Small Business Marketing and Promotion Techniques3 credits
Developing and refining the marketing and promotion plans for a small business. Topics for discussion include merchandise/service resources, budgeting, study of competition, market segmentation, pricing, promotion, non-media ways to get customers to come to your business and strategic planning.

10-145-108 Field Experience Seminar 2 credits
Employment in an approved occupation related to the student's future business plans is a prerequisite. Reports and discussion in class are coordinated with student employment. Employee appraisal, evaluation and harmony on the job will also be topics of discussion. The course requires a minimum of 144 hours of employment.

10-196-191 Principles of Supervision 3 credits
The learner applies the skills and tools necessary to perform the functions of a front line manager. Each learner will demonstrate the application of strategies to make the transition to a contemporary supervisory role including: operations planning and analysis, delegation, staffing, problem solving, motivation, training, leadership and performance assessment.

Career Potential:

- **Business Owner/Manager**
- **Entrepreneur**
- **Manager of Small Business**
- **Department Manager**
- **Merchandising Manager**
- **Sales Representative**
- **Sales Associate**

Student may desire more specialty education depending on the type of business being planned.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Supervisory Management

Program Number: 10-196-1

Associate in Applied Science Degree

Business and Marketing Program Cluster

Center for Business and Applied Arts

Program offered at Madison, Fort Atkinson, Portage, Reedsburg and Watertown Campuses

For information call: (608) 258-2370, (608) 258-2372 or (800) 322-6282 Ext. 2370 or 2372

About the Program

The Supervisory Management Program is designed to meet the increasing demand for trained supervisors. Program content provides hands-on supervisory training and education for present and future supervisors through a curriculum divided into three development areas: Core Management, Personal Skills and Leadership Skill Development.

- **Standard Semester Format** provides students with regular semester classes on campus. Classes meet one evening per week over the course of the semester.
- **Accelerated "Fastrack" Programming** reduces in-class time commitment by 50 percent. Classes meet one night each week, and students can complete Supervisory Management core courses in 18 months. Related study requirements are also available in accelerated format.
- **Madison College–Online Programming** offers learners the opportunity to supplement their Supervisory Management program courses by completing credit courses online.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

			Hrs/week
Supervisory / Management Skills		**Credits**	**Lec-Lab**
10-196-191	Principles of Supervision	3	3-0
10-196-192	Foundations of Quality	3	3-0
10-196-193	Human Resource Management	3	3-0
10-196-134	Legal Issues for Supervisors	3	3-0
10-196-188	Project Management	3	3-0
10-196-136	Safety in the Workplace **or**	3	3-0
10-196-105	Occupational Trends & Issues	(3)	(3-0)
Supervisory / Personal Skill Development			
10-196-164	Personal Skills for Supervisors	3	3-0
Supervisory / Leadership Skills			
10-196-190	Leadership Development	3	3-0
10-196-168	Organizational Development **or**	3	3-0
10-196-116	Human Behavior at Work	(3)	(3-0)
10-196-189	Team Building and Problem Solving	3	3-0
10-196-169	Diversity and Change Management	3	3-0
	Total	**33**	
Related Study Requirements			
10-101-106	Accounting Concepts	3	3-0
10-102-160	Business Law **OR**	3	3-0
10-102-168	Employment Law	(3)	3-0
10-103-137	Word–Beginning	1	1-0
10-103-133	Excel–Beginning	1	1-0
10-103-143	Powerpoint	1	1-0
10-804-123	Math with Business Apps	3	3-0
10-801-195	Written Communication	3	3-0
10-801-196	Oral/Interpersonal Communication	3	3-0
10-801-166	Intro to Ethics: Theory & App	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
10-809-195	Economics	3	3-0
10-809-197	Contemporary American Society	3	3-0
	Total	**30**	
Elective Requirements			
	Electives	3	E
	Total elective requirements	**3**	
	TOTAL (all requirements)	**66**	

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Program Courses

10-196-191 Principles of Supervision 3 credits
The learner applies the skills and tools necessary to perform the functions of a front line manager. Each learner will demonstrate the application of strategies to make the transition to a contemporary supervisory role including: operations planning and analysis, delegation, staffing, problem solving, motivation, training, leadership and performance assessment.

10-196-192 Foundations of Quality 3 credits
The learner applies the skills and tools necessary to implement and maintain a continuous improvement environment. Each learner will demonstrate the application of a personal philosophy of quality, identify stakeholder relationships, customer expectations, systems-focus, use of appropriate models and tools, managing improvement projects and measuring effectiveness of continuous improvement activities.

10-196-193 Human Resource Management 3 credit
The learner applies the skills and tools necessary to work effectively with the Human Resource (HR) function. Each learner will gain an understanding of the supervisor's role in contemporary human resource management regarding: the impact of EEOC, writing job descriptions, recruitment and selection, conducting interviews, employee orientation, policies and procedures, training, performance management, employee counseling, and effective use of compensation and benefit strategies.

10-196-134 Legal Issues for Supervisors 3 credits
The learner applies the skills and tools necessary for supervisors to function effectively within today's legal framework. Each learner will demonstrate the application of practices to meet the requirements of U.S. employment laws including implications for: staffing, disciplinary actions and documentation, preventing harassment and discrimination, safety, workplace violence, incident investigation, privacy issues and maintaining organizational policies and procedures.

10-196-188 Project Management 3 credits
The learner applies the skills and tools necessary to design, implement, and evaluate formal projects. Each learner will demonstrate the application of methods for project planning, developing project proposals, use of relevant software, working with project teams, sequencing tasks, charting progress, dealing with variations, managing project budgets and resources, implementation and project assessment.

10-196-164 Personal Skills for Supervisors 3 credits
The learner applies the skills and tools necessary to deal with the personal challenges inherent with a manager's role. Each learner will demonstrate the application of time management techniques, personal planning, continuous learning, valuing rights and responsibilities of others, effective communication, assertiveness and dealing effectively with stress.

10-196-190 Leadership Development 3 credits
The learner applies the skills and tools necessary to fulfill his/her role as a contemporary leader. Each learner will demonstrate the application of strategies to evaluate leadership effectiveness and communicate vision, mission and goals. Additional topics include: ethical behavior, personal leadership styles and flexibility, impacts of power, employee development, coaching and effective conflict resolution.

10-196-189 Team Building and Problem Solving 3 credits
The learner applies the skills and tools necessary to facilitate problem solving in a team environment. Each learner will demonstrate the application of strategies regarding: the necessary roles for team effectiveness, stages of team development, team problem solving and consensus, systematic processes for problem definition, data acquisition and analysis, generating alternative solutions, choosing solutions, implementation planning and evaluation.

10-196-168 Organizational Development 3 credits
The learner applies the skills and tools necessary to effectively navigate within an organizational structure. Each learner will demonstrate the application of theories regarding the impact of globalization on organizational design, operation and culture. Other topics include: the impact of change, organizational decision making and the benefit of vision, mission and goals plus future challenges affecting the organizations.

10-196-116 Human Behavior at Work 3 credits
In this course, the learner applies the skills and tools necessary to work effectively with behavior found in organizations. Each learner will explore and demonstrate the application of theories in motivation, perception, organizational culture, employee development and communication. In addition, concepts such as diversity, decision making, conflict management and managing in a global environment will be introduced.

10-196-169 Diversity and Change Management 3 credits
The learner applies the skills and tools necessary to implement and maintain a diverse work environment that values change. Each learner will demonstrate the application of assessing the current extent of diversity in the workplace, analyze the effect of perceptions, attitudes, biases and organization culture on diversity, dealing with barriers, change management strategies, process and reactions, measuring progress and celebrating success.

10-196-136 Safety in the Workplace 3 credits
The learner applies the skills and tools necessary to provide a safe and secure work environment. Each learner will demonstrate the application of strategies regarding safety awareness, compliance, investigation and documentation. Other topics include: safety orientation, chemical safety, right-to-know, inspections, risk analysis, workplace violence, substance abuse, first aid, fire and electrical safety, emergency preparedness and liaison with external agencies.

10-196-105 Occupational Trends/Issues 3 credits
In this course, the learners summarize, present and discuss information on major trends and issues affecting supervisors in the complex, technological world of the future. Learners apply the knowledge gained in program courses, problem-solving skills and their personal experiences to identify successful strategies for the future.

Career Potential:

The Supervisory Management program is designed to meet the professional development needs of present and aspiring supervisors as their organizational roles change now and in the future.

- **Supervisor**
- **Lead Worker**
- **Team Leader**
- **Shift Leader**
- **Team Facilitator**
- **Coach**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Madison Area Technical College

Baking / Pastry Arts

Effective 2010-2011

Program Number: 31-314-1

One-Year Technical Diploma

Hospitality Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 246-6368 or (800) 322-6282 Ext. 6368

About the Program

The Baking/Pastry Arts Program provides students with a comprehensive hands-on experience in baking and pastry arts. Students will obtain the practical and theoretical training necessary to produce quality bakery products from scratch. An emphasis is placed on decorative pastry arts including cake decorating, sugar and chocolate work, and plated dessert presentations. Through their experiences in the bakery store, students will learn effective merchandising and sales training techniques.

This program is designed to be completed in two semesters plus the summer internship. Due to the limited availability of the courses and the small size of the program, students may not attend on a part-time basis.

The program is accredited by the Retail Bakers of America and the American Culinary Federation Educational Institute. After completion of the B/PA program and with 1000 hours of work experience in the baking industry, students can take the Retail Bakers of America's Certified Journey Baker written exam. This is the beginning level of certification leading up to a Master Baker qualification. The purpose of RBA certification is to raise the professional standards and verify the work, skill and knowledge professional bakers bring to the marketplace and improve job opportunities and income for certified bakers and decorators.

Graduates of this program typically earn $12 to $14 per hour.

Unique Requirements for Admissions

High school diploma or GED. A COMPASS or equivalent assessment test is required prior to registration. Competency in Windows, Internet and basic word processing is necessary for success in this program.

Students must have appropriate competency in math, reading and writing to succeed in this program. If remedial course work is recommended, it is suggested that these courses be completed before beginning the Baking/Pastry Arts program courses.

Potential students must be physically able to lift 50# on a routine basis and stand for a minimum of eight hours per day. They should also have good communication and social skills to be successful in this program.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

			Hrs/week
Summer (prior to start of program)		**Credits**	**Lec-Lab**
31-314-300	Baking Boot Camp*	1	1-1
First Semester**			
10-109-124	Fundamentals of Food Preparation*	2	1-2
31-314-315	Introduction to Baking*	2	0-4
31-314-325	Pastries and Yeast Doughs*	4	0-8
31-314-365	Chocolate Basics*	1	0-2
31-314-370	Chocolate Candies*	1	0-2
31-314-375	Experimental Baking*	1	0-2
31-314-384	Cake Decorating*	2	0-4
10-316-101	Principles of Sanitation*	1	1-0
31-314-310	Baking Theory*	1	2-0
	Semester Total	**15**	
Second Semester**			
31-314-335	Specialty Cakes and Miniatures*	3	0-6
31-314-345	Artisan Breads and Breakfast Pastries*	4	0-8
31-314-355	Bakery Production*	3	0-6
31-314-372	Chocolate & Sugar Confections*	1	0-2
31-314-388	Advanced Cake Decorating*	2	0-4
31-314-389	Bakery Seminar (interim course)*	1	2-0
10-316-152	Nutrition*	2	2-0
	Semester Total	**16**	
Summer			
31-314-390	Bakery Internship*	2	0-8

*Courses only offered in semester shown.
**All courses must be taken concurrently each semester.

Program Courses

31-314-300 Baking Boot Camp 1 credit
This course is required for all students accepted into the Baking/Pastry Arts program and is taken during the summer prior to their fall enrollment. This short course offers the students an introduction to the requirements and demands of the program and to a career in the baking industry. Students spend time in the classroom and baking lab, as well as participate in a required field trip to a bakery.

31-314-315 Introduction to Baking 2 credits
Students develop a foundation of baking principles through hands-on application of production equipment in a state-of-the-art baking lab. Students will prepare a variety of standard bakery products to obtain knowledge of many baking processes. Safe use of bakery equipment and proper sanitation procedures are emphasized. Prerequisites or concurrent enrollment: 31-314-310, 10-316-101 and appropriate Math Placement test score or equivalent course.

31-314-325 Pastries and Yeast Doughs 4 credits
Develops manual baking skills and a working knowledge of the production and finish of various pie and tart crusts, fillings, crisps and cobblers, crepes, and puff paste items. Basic straight yeast doughs such as breads, rolls and sweet dough will also be produced. Students learn both handcrafted and machine methods in the make-up of these products. Prerequisites or concurrent enrollment: 10-316-101, 31-314-310 and appropriate Math Placement test score or equivalent course.

31-314-335 Specialty Cakes and Miniatures 3 credits
This course covers all aspects of specialty cake baking, constructing, and assembly. Production includes various types of foam cakes, creamed cakes, icings and fillings, along with dessert sauces, and plating techniques. European classic tortes as well as contemporary entremets and petit gateau will be demonstrated with lab time for practice. A final project is the creation of a dessert buffet. Prerequisites: 10-316-101 and 31-314-315.

31-314-345 Artisan Breads & Breakfast Pastries 4 credits
This course provides students with a working knowledge of the production of pre-fermented yeast doughs and sourdoughs. In addition, students produce Viennoiserie, both laminated such as croissant, Danish and Kringle, and non-laminated products as Brioche and Gibassier. Production methods and speed are emphasized. Cooked custards and crepes are also introduced. Prerequisite: 31-314-325.

31-314-355 Bakery Production 3 credits
The lab is used as a simulated bakery in this course with products being merchandised through the bakery store. Students make items with an emphasis on production speed to help understand the flow of a real bakery. Students are responsible for service case presentation as well as effective merchandising displays and customer service. Prerequisites: 10-316-101 and concurrent enrollment in all second semester baking/pastry arts courses.

31-314-365 Chocolate Basics 1 credit
Gives learners a basic introduction into the world of chocolate. The history and production of chocolate is discussed. Learners sample a wide variety of chocolates from different companies, as well as specific types of chocolate. Brownies, mousse, and hot chocolate are made using these different chocolates and the products are evaluated. After learning to temper chocolate, an assortment of truffles is produced. Prerequisites:10-316-101, 31-314-310 and appropriate Math Placement test score or equivalent course.

31-314-370 Chocolate Candies 1 credit
This course builds on competencies learned in Chocolate Basics. Advanced techniques of candy making are practiced such as hand dipped centers, caramel making, and chocolate molds. Prerequisite: 31-314-365.

31-314-372 Chocolate & Sugar Confections 1 credit
Students learn to properly cook sugar and isomalt. Basic sugar techniques, such as poured, blown and pulled sugar are practiced. Gum paste amenities are created. Decorative chocolate techniques such as chocolate clay, piping and spraying are practiced. Students create a final chocolate showpiece. Prerequisites: 31-314-365 and 31-314-370.

31-314-375 Experimental Baking 1 credit
Provides the opportunity to discover functions of ingredients through lab experiments. Ingredient amounts and procedures are varied in specific formulas and results are observed to determine optimum formulation. Prerequisites: 31-314-310, 10-316-101 and appropriate Math Placement test score or equivalent course.

31-314-384 Cake Decorating 2 credits
Provides students with hands-on practice in the basics of production cake decorating and decorative bakery work, with attention given to the techniques of icing cakes. Cake Decorating areas include script, borders, drop and nail flowers, as well as the use of edible images. Students practice icing cakes and decorating them in a timely manner. Emphasis is placed on accuracy and speed of decorating to simulate industry conditions. Prerequisite: 31-314-310 and 10-316-101.

31-314-388 Advanced Cake Decorating 2 credits
Hands-on practice with advanced cake decorating techniques is provided. Rolled fondant, modeling with gum paste and marzipan, advanced airbrushing and tiered cake assembly are covered. Prerequisites: 31-314-384 and 10-316-101.

31-314-389 Bakery Seminar 1 credit
Covers current and relevant issues related to baking and pastry arts. Guest professionals provide expertise and knowledge about specific areas in the baking industry. In depth research is conducted on selected topics. A research paper is required. This interim course is taken in between the spring semester and the summer internship.

31-314-390 Baking Internship 2 credits
Provides an opportunity to gain practical work experience through supervised internships at an approved job site. Students develop written competency plans with individualized objectives that compliment and enhance instruction given in bakery labs. Prerequisite: completion of all core courses in the Baking/Pastry Arts program.

10-316-101 Principles of Sanitation 1 credit
Covers food service sanitation principles and the role of food service personnel in the prevention of contamination and food borne illness. Certification through the National Restaurant Association Educational Foundation is a requirement for completion and can be used to apply for state certification. Prerequisite: Appropriate Reading Placement test score or equivalent course.

31-314-310 Baking Theory 1 credit
Provides an in depth understanding of basic baking principles and knowledge of the functions and appropriate usage of the major ingredients used in production baking. Different types of bakery products are classified according to their characteristics. Ingredient cost-outs are calculated. Prerequisite: Appropriate Reading Placement test score or equivalent course.

10-316-152 Nutrition 2 credits
Provides information about nutrition as it applies to the food service industry. The six classes of nutrients are discussed as well as the latest guidelines set forth by governmental agencies and health organizations. Students learn about healthful cooking methods needed to modify and create menus for specific health concerns. The role of diet in disease prevention also is discussed.

Career Potential:

- **Bakery Worker/ Assistant Pastry Chef**
  May work in a variety of commercial food service establishments such as retail bakeries, supermarket bakeries, restaurants or hotels, hospitals or nursing homes, catering operations and specialty shops.

With additional education and/or work experience, graduates may find employment as:

- **Baker**
- **Bakery Manager**
- **Commercial Cake Decorator**
- **Bakery Owner**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Barber/Cosmetologist

Program Number: 31-502-1

One-Year Technical Diploma

Hospitality Program Cluster

Center for Business and Applied Arts

Program offered at Downtown Education Center, Madison

For information call: (608) 258-2405 or (800) 322-6282 Ext. 2405

About the Program

Graduates receive training in barbering and cosmetology, and may be licensed to practice in either area. A COMPASS or equivalent assessment test is required before registration.

Please note: Students are required to purchase a supply kit early in the first semester of classes. The kit includes all equipment and supplies needed to complete this program. Approximate cost of the supply kit is $1,500.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

First Semester		Credits	Hrs/week Lec-Lab
31-502-321	Barber/Cosmetology Techniques 1	4	0-8
31-502-322	Barber/Cosmetology Techniques 2	3	0-6
31-502-340	Barber/Cosmetology Theory 1	5	10-0
31-502-341	Barber/Cosmetology Theory 2	5	10-0
31-502-392	Barber/Cosmetology Sales and Advertising 1	1	2-0
10-104-189	Customer Relations	2	2-0
	Semester Total	**20**	

Second Semester			
31-502-323	Barber/Cosmetology Techniques 3	3	0-6
31-502-324	Barber/Cosmetology Techniques 4	3	0-6
31-502-325	Barber/Cosmetology Techniques 5	5	0-10
31-502-326	Barber/Cosmetology Techniques 6	4	0-8
31-502-342	Barber/Cosmetology Theory 3	2	4-0
31-502-393	Barber/Cosmetology Sales and Advertising 2	1	2-0
	Semester Total	**18**	

Summer Semester			
31-502-327	Barber/Cosmetology Techniques 7	5	0-10
31-502-328	Barber/Cosmetology Techniques 8	4	0-8
31-502-343	Barber/Cosmetology Theory 4	3	6-0
31-502-395	State Board Review	1	2-0
	Semester Total	**13**	

Madison Area Technical College

Barber/Cosmetologist

Program Number: 31-502-1

Program Courses

31-502-321 Barber/Cosmetology Techniques 1 4 credits
Introduces various services performed by the barber/cosmetologist. Emphasis is on hair analysis, shampooing, basic permanent waving and haircutting techniques, scalp and hair conditioning treatments, and introductory hair styling services. Students spend the first part of the semester working on manikins and each other. During the second part of the semester, students develop skills through instruction in the salon while working on clients. Prerequisites: 31-502-340 and Corequisites: 31-502-392 and 31-502-341.

31-502-322 Barber/Cosmetology Techniques 2 3 credits
A continuation of 31-502-321, this course emphasizes the development of advanced techniques in hair cutting, styling and permanent waving. This course also introduces the hands on application of various hair coloring techniques, chemical relaxing, manicuring, pedicuring and facial services. Students continue to work on clients with instruction and guidance. Prerequisites: 31-502-321 and 31-502-340. Corequisites: 31-502-392 and 31-502-341

31-502-323 Barber/Cosmetology Techniques 3 3 credits
Emphasizes advanced training in the techniques presented in 31-502-321 and 31-502-322. Students continue to work on clients to further develop skills to prepare them for entering the job market and passing the state examination. Prerequisite: all first semester courses.

31-502-324 Barber/Cosmetology Techniques 4 3 credits
Continuation of 31-502-323. Prerequisite: all first semester courses.

31-502-325 Barber/Cosmetology Techniques 5 5 credits
Continuation of 31-502-324. Prerequisite: all first semester courses.

31-502-326 Barber/Cosmetology Techniques 6 4 credits
Continuation of 31-502-325. Prerequisite: all first semester courses.

31-502-327 Barber/Cosmetology Techniques 7 5 credits
Continuation of 31-502-326. Prerequisite: all first and second semester courses.

31-502-328 Barber/Cosmetology Techniques 8 4 credits
Continuation of 31-502-326. Prerequisite: all first and second semester courses.

31-502-340 Barber/Cosmetology Theory 1 5 credits
Students study the theory related to introductory salon services such as professional image, hair cutting and product knowledge. Included are nomenclature selection, care and proper usage. Students study bacteriology, decontamination and first aid procedures, tricology, and the basic theory of shampooing and conditioning hair. Basic permanent waving, hair design, and hairstyling services are also included. Corequisites: 31-502-392.

31-502-341 Barber/Cosmetology Theory 2 5 credits
This course includes the anatomy and physiology of the skin and nails, manicuring, pedicuring, skin care and facial services. Advanced hair styling and chemical relaxing are included. Presents the theories of hair coloring and hair cutting methods are continued. This course also covers the history of the industry and related governing laws. Prerequisite: 31-502-340 and Corequisities: 31-502-321, 31-502-322, and 31-502-392.

31-502-342 Barber/Cosmetology Theory 3 2 credits
Presents advanced techniques and industry trends as determined by the instructors, including advanced hair coloring techniques. Electricity as it relates to the salon is included. Preparation for taking the State Board exam begins. Prerequisites: all first semester courses.

31-502-343 Barber/Cosmetology Theory 4 3 credits
Presents the theories of hair coloring and hair cutting methods are continued. Prerequisites: all first semester courses and 31-502-342.

31-502-392 Barber/Cosmetology Sales and Advertising 1 1 credit
Introductory sales course stressing the proper application of sales techniques to skilled occupations. The sales and advertising techniques as applied to job disciplines are designed not only to create greater efficiency on the job, but also to improve working relationships with fellow employees and customers. Includes the application of sales approach, demonstration and close.

31-502-393 Barber/Cosmetology Sales and Advertising 2 1 credit
Students learn to recognize different types of salons and the opportunities each has to offer. Students also learn to identify and overcome obstacles that they may encounter. Students gain a firm grasp of duties of a salon employee. Prerequisite: 31-502-392.

31-502-395 State Board Review 1 credit
Prepares students to the State Board exam.

Career Potential:

- **Barber**
- **Cosmetologist**
- **Distribution Sales**
- **Educational Director for a Salon or Manufacturer**
- **Esthetician**
- **Hair Color Technician**
- **Hair Design**
- **Hair/Make-up Stylist for theater, film, fashion industry or photography**
- **Hair-Replacement Specialist**
- **Make-up Artist**
- **Manufacturer's Representative**
- **Men's Hair Stylist**
- **Nail Technician**
- **Pedicurist**
- **Perm Technician**
- **Salon Coordinator**
- **State Inspector/Examiner**

With additional education and/or work experience, graduates may find employment as:

- **Salon/Spa Manager**
- **Barber/Cosmetology Instructor**
- **Beauty Editor**
- **Industry Feature Writer**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Culinary Arts

Associate in Applied Science Degree

Program Number: 10-316-1

Hospitality Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 246-6368 or (800) 322-6282 Ext. 6368

About the Program

The Culinary Arts Program is for individuals interested in pursuing a career within the hospitality field in mid-management positions in food preparation and service areas. This program is accredited by the American Culinary Federation Educational Institute. Statistics show that the food service industry is America's #1 retail employer.

An education in Culinary Arts at Madison College offers you unparalleled opportunity in an industry that generates $399 billion in annual sales in the United States. According to the National Restaurant Association (NRA), 11.3 million people are employed in food service-related businesses making it the largest retail employer in the country and second in overall employees only to the federal government. Culinary Arts Program alumni hold many key positions throughout the region such as purchasing agents, general managers and executive chefs. In fact, our graduates typically receive on average 5 to 10 job offers from local industry. Many go on to become educators or to own their own businesses.

Graduates of this program typically earn $18,500 to $35,000 per year.

Unique Admission Requirements

A high school diploma or GED is required for admission. A final cumulative grade point average to equate to a C+ average (2.25 GPA) and satisfactory grades in core academic subjects are expected of students entering the program directly from high school. A COMPASS or equivalent assessment test is required prior to registration. Competency in Windows, Internet and basic word processing is necessary for success in this program. Students may take Windows (10-103-134/135), Word–Beginning (10-103-137) and/or Internet Introduction (10-103-146) during the first semester if they do not meet this requirement.

Students must have appropriate competency in math, reading and writing to succeed in this program. If remedial course work is recommended, it is suggested that these courses be completed before beginning the Culinary Arts program courses.

Potential students must be physically able to lift 50# on a routine basis and stand for a minimum of eight hours per day. They should also have good communication and social skills to be successful in this program.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

			Hrs/week
FIRST YEAR			
First Semester		**Credits**	**Lec-Lab**
10-316-101	Principles of Sanitation*	1	1-0
10-316-106	Food Theory*	2	2-0
10-316-111	Professional Cooking 1*	4	0-8
10-316-158	Food Purchasing Analysis	2	2-0
10-801-195	Written Communication	3	3-0
10-804-123	Math with Business Applications	3	3-0
	Semester Total	**15**	
Second Semester			
10-101-116	Hospitality Industry Accounting 1	3	3-0
10-316-121	Professional Cooking 2**	4	0-8
10-316-139	Catering	2	1-2
10-316-152	Nutrition	2	2-0
10-801-196	Oral/Interpersonal Communication	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Semester Total	**17**	
Summer Session			
10-316-194	Culinary Internship**	2	0-8
SECOND YEAR			
First Semester			
10-109-134	Hotel/Restaurant Cost Control	3	3-0
10-316-104	Introduction to Gourmet Food Preparation**	3	1-5
10-316-108	Culinary Baking Fundamentals**	1	1-0
10-316-115	Culinary Baking Lab**	2	0-4
10-316-132	Wait Staff Training**	1	1-0
10-316-140	Menu Planning**	1	1-0
10-809-197	Contemporary American Society	3	3-0
	Elective	3	E
	Semester Total	**17**	
Second Semester			
10-109-125	Tourism Management	3	3-0
10-316-130	Gourmet Foods	4	1-6
10-316-133	Garde Manger/Decorative Foods	2	1-2
10-316-135	Dining Room Operations	1	1-0
10-809-166	Intro to Ethics: Theory & Application **OR**	3	3-0
20-809-276	Business Ethics[a]	(3)	3-0
10-809-195	Economics	3	3-0
	Semester Total	**16**	

All culinary related (10-316-xxx) courses are offered only in semester shown. See prerequisite/co-requisite information listed in the course description for each course.

* Principles of Sanitation, Food Theory and Professional Cooking 1 must be taken concurrently and a grade of C or better is required to continue with second semester courses.

**All courses listed with double asterisks must be taken concurrently in the semester shown and require a grade of C or better to continue with the next semester culinary related courses.

[a] Other course options are available. See program advisor for information.

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Program Courses

10-316-101 Principles of Sanitation 1 credit
Covers food service sanitation principles and the role of food-service personnel in the prevention of contamination and food-borne illness. Certification through the Educational Foundation of the National Restaurant Association is a requirement for completion and can be used to apply for state certification. Prerequisite: Appropriate Reading Placement test score or equivalent course.

10-316-104 Intro to Gourmet Food Preparation 3 credits
Provides students with an introduction to classical and ethnic cooking techniques common to full-service restaurants. Students will have an opportunity to apply and develop skills in the Madison College Gourmet Dining Room, a simulated restaurant environment. Prerequisite: grade of C or better in all first-year lab courses, Food Theory and Principles of Sanitation and concurrent enrollment in 10-316-108, 10-316-115, 10-316-132 and 10-316-140.

10-316-106 Food Theory 2 credits
This lecture class teaches students basic culinary technique, classifications, equipment identification and all rudimentary aspects of professional cooking. Discussion includes culinary history, food group identification, and raw and cooked food classifications. Topics also cover stock making, knife skills, and equipment operation. Co-requisite: 10-316-111. Prerequisite: Appropriate Reading Placement test score or equivalent course.

10-316-108 Culinary Baking Fundamentals 1 credit
This course provides an overview of basic baking principles and knowledge of the functions of major ingredients used in culinary baking. There are in depth lectures as well as practice of plating techniques for Gourmet service. How to set up a pastry station in a restaurant setting is discussed. Prerequisite: Appropriate Reading Placement test score or equivalent course and concurrent enrollment in Culinary Baking Lab.

10-316-111 Professional Cooking 1 4 credits
Students apply classroom work and lectures into hands-on cooking situations. All methods of cookery are covered and knife skills and other vital techniques are reinforced. Students experience practical situations as they produce food in a simulated food service environment. Emphasis on regional cookery, fusion cooking, classical cuisine and Nouvelle cuisine. Students create menus from scratch and interpret more refined recipes. Prerequisites or concurrent enrollment in 10-316-101 and appropriate Math Placement test score or equivalent course. Co-requisite: 10-316-106.

10-316-115 Culinary Baking Lab 2 credits
Introduces students to the fundamentals of production baking through hands-on application in a modern baking lab using production equipment. Students prepare a variety of standard bakery products, such as cookies, muffins, pies and breads, to obtain knowledge of the many processes of baking. Students also practice basic cake decorating techniques. Prerequisites: 10-316-101 and 10-316-111. Co-requisite: 10-316-108.

10-316-121 Professional Cooking 2 4 credits
Continuation of 10-316-111 with emphasis placed on the demands of "cutting edge" cuisine. Students elevate their skills to such diversity as infusions, emulsions, terrines, reductions, and fat free cuisine. Students interpret intense recipes, create dishes from scratch, and research international cuisine. Students prepare themselves for the rigor of the food service industry as they fine-tune all their skills. Research will be done on modern cuisine and trends. "Great American Chef Tours" including examination of the culinary epicenters of New York, San Francisco, and New Orleans. Students learn the specialty of catering, gourmet store operation, and private chef occupations. Prerequisites: 10-316-101, 10-316-106 and 10-316-111.

10-316-132 Wait Staff Training 1 credit
Focuses on types of dining room service appropriate to various restaurant operations. Students gain understanding of relationship between "front" and "back" of the house. Co-requisite: 10-316-104.

10-316-130 Gourmet Foods 4 credits
Expanding on the first semester of Intro to Gourmet Foods, students will incorporate the culinary skills they have learned over the last one-and-a-half of the culinary arts program. Utilizing up to date cooking techniques and following industry standards for high-end foods students will maintain all aspects of the kitchen with the utmost care. With an emphasis on working on presentation, flavors, cooking skills and time management students will gain a real work environment with the lab component of learning to prepare high-end foods. Students are expected to have completed the first semester of Intro to Gourmet before entering the Gourmet Foods class. Co-requisite: 10-316-135.

10-316-133 Garde Manger/Decorative Foods 2 credits
The art and craft of the cold kitchen as it applies to modern day chefs. Students will work with ice and learn a basic technique for carving ice. From the ice students will gain knowledge of the professional garde manger and all areas that are classified cold food. Understanding the science that is involved with garde manger and how to correctly prepare, store and use cold foods. Prerequisites: 10-316-101 and 10-316-111.

10-316-135 Dining Room Operation 1 credit
Students learn and practice the responsibilities common in dining room management. Various styles of table service, tableside presentations and beverage service are implemented. Co-requisite: 10-316-130.

10-316-139 Catering 2 credits
Provides an understanding of catering concepts through demonstration and hands-on experience by completing various food functions. The events vary from black tie multi-course dinners for the community to BBQ lunches. Prerequisites: 10-316-101 and 10-316-111.

10-316-140 Menu Planning 1 credit
This course provides the fundamentals of menu planning. Topics include menu trends, the market survey, nutrition, menu planning, foodservice menus, yield tests, standard recipes, recipe costing, menu development and design, sale history, merchandising, and equipment analysis. Emphasis is placed on developing the skills necessary to effectively create a professional menu. This course is offered in an online format only.

10-316-152 Nutrition 2 credits
Provides information about nutrition as it applies to the food service industry. The six classes of nutrients are covered as well as the latest guidelines set forth by governmental agencies and health organizations. Students learn about healthful cooking methods needed to modify and create menus for specific health concerns. The role of diet in disease prevention is also discussed.

10-316-158 Food Purchasing Analysis 2 credits
Focuses on the mechanics of food and beverage purchasing: what and where to buy, the selection of suppliers, the various purchasing systems, and the practical aspects and legal considerations of food buying. Prerequisite: Appropriate Math Placement test score or equivalent course. This course is offered in an online format only.

10-316-194 Culinary Internship 2 credits
This course is designed to give students an opportunity to gain practical work experience through a supervised internship at an approved job site. This course is intended to complement and enhance program core courses. Selection of a site is based on the student's individual professional objectives. Prerequisites: for Culinary Arts students—grade of C or better in 10-316-111 and 10-316-121, 10-316-101, 10-316-115, 10-316-106 and 10-316-108; for Food Service Production students—grade of C or better in 10-316-111, 10-316-101, 10-316-115, 10-316-106, 10-316-108. Co-requisite: 10-316-121.

Recommended Electives

10-109-136	Tourism Law	3 credits
10-316-112	Cuisines of the World[a]	4 credits
10-316-118	Meat Cutting[a]	1 credit
10-316-178	Americana Cuisine[a]	2 credits
10-316-189	Breakfast and Lunch Cookery[b]	2 credits

[a]Offered first semester only.
[b]Offered second semester only.

Career Potential:

- **Prep Cooks/Cooks**
  Prepare various foods such as meats, vegetables, soups and sauces as directed by a chef or kitchen manager.
- **Line Cooks**
  Are directly involved with online food preparation.
- **Broiler Chefs or Garde Mangers**
  Are primarily food preparation people for a particular station in the kitchen.
- **Sous Chefs**
  Manage or supervise a particular station in the kitchen; are a direct link to kitchen from the executive chef.
- **Executive Chefs or Owner/Operators**
  Generally supervise all kitchen personnel and coordinate purchase, storage and preparation of all food items.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Destination Management Certificate

Effective: 2010-2011

Program Number: 90-109-2

Certificate

Hospitality Program Cluster

Center for Business and Applied Arts

Certificate courses offered at Madison Campuses

For information call: (608) 246-6372 or (800) 322-6282 Ext. 6372

About the Certificate

The Destination Management Certificate is designed to develop competencies in marketing, customer service, human relations, problem solving, communications and total quality management, as well as the technical skills needed for Convention and Visitors Bureaus and Chambers of Commerce. Graduates are prepared for careers with Convention and Visitors Bureaus, Chambers of Commerce, motorcoach companies, tour wholesalers, and other Destination Management organizations.

Unique Requirements for Admission

This certificate does not require an application to the college. Students register for individual courses during the open registration period each semester. It is the student's responsibility to request the certificate from the Center for Business & Applied Arts office (608-246-6372) once all required classes have been completed and grades have been received. A grade of C or better is required in each course to award the certificate.

Courses

10-103-143 PowerPoint 1 credit
Introduction to PowerPoint presentation software. Create, edit, save, run and print a presentation. Insert clip art, apply animation and slide transition effects, import text, customize background and bullets, insert a table, scale objects, create a WordArt object and create an interactive document. Prerequisites: competency in Windows or Windows 10-103-134 or 10-103-135 AND experience using word processing software.

10-109-102 Fundamentals of Meeting Management 3 credits
Students explore the core issues of meeting planning from the fundamentals to the new trends shaping the meetings industry. Development of meeting timelines, checklists and request for proposal are introduced. Further focus includes the process meeting planners must use in site selections, the value of meeting objectives and format, and attendee expectations.

10-109-104 Program Design and Development 3 credits
The design and development of student learning experiences have many implications that meeting planners must incorporate into the programming of a meeting. Identifying the meeting's objectives determines the subject matter content, appropriate educational approach and meeting setting. Constructive and well-organized program planning is vital to the successful development of educational programs and the meeting outcome.

Curriculum

Courses		Credits	Hrs/week Lec-Lab
10-109-105	Fundamentals of Destination Management*	3	3-0
10-109-120	Tourism Business Planning**	3	3-0
10-104-102	Marketing Principles	3	3-0
10-103-143	PowerPoint (8 week class)	1	0.75-2.25
	Semester Total	**10**	

Plus ONE of the following courses:

10-109-102	Fundamentals of Meeting Management	3	3-0
10-109-104	Program Design and Development**	3	3-0
10-109-106	Programming and Public Relations**	3	3-0

* Courses offered in fall semester only
**Courses offered in spring semester only

10-109-105 Fundamentals of Destination Mgmt. 3 credits
This online course examines tourism development, relationships with Boards of Directors, government relations, fund raising, and basic laws. Aspects of volunteer management, team building, time management, media relations, sales and marketing, and public relations will be explored. Hot topics of revenue diversification, ethics, visitor centers, retail development and special event expansion will be discussed.

10-109-106 Programming and Public Relations 3 credits
This course provides an investigation of planning, organizing, conducting and evaluating recreation experiences, support systems and public relations in private, public and commercial agencies. Prerequisite for Recreation programs: completion or concurrent enrollment in one of the following: 10-109-101 or 10-109-103. Prerequisite for Meeting and Event Management programs: completion or concurrent enrollment in one of the following: 10-109-101, 10-109-103 or 10-109-105.

10-109-120 Tourism Business Planning 3 credits
Examines the historical development, growth, trends and future directions of profit-oriented commercial tourism. Surveys tourism, recreation and hospitality industries; focuses on starting, marketing and managing a tourism enterprise. Students create commercial tourism business plans.

10-104-102 Marketing Principles 3 credits
This foundation course introduces students to the marketing process and how it operates in today's dynamic organizations. The entire marketing mix is examined on a broad scale. Topics include: market segmentation and targeting strategies, market research, consumer behavior, product development, pricing policies, distribution and an overview of promotion. Provides a comprehensive overview of the exciting world of marketing.

Career Potential:

- **Tourism Development Specialist**
- **Economic Development Specialist**
- **Membership Development Specialist**
- **Marketing Operations**
- **Database Operations**

With additional education and/or work experience, graduates may find employment as:

- **Director, Visitor and Convention Bureau**
- **Director, Chamber of Commerce**
- **Marketing Manager**
- **Special Event Manager**
- **Sales Manager**
- **Communications Director**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Effective: 2010-2011

Food Service Production

Program Number: 31-303-2

One-Year Vocational Diploma

Hospitality Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 246-6368 or (800) 322-6282 Ext. 6368

About the Program

The Food Service Production program helps students develop skills to pursue a career in the food-service industry within restaurants, bakeries, catering services, delis, hotels, resorts, health care facilities and schools.

The program incorporates comprehensive hands-on learning experiences complimented by supportive and theoretical activities to prepare students for a wide range of career opportunities in the food service industry. All of the credits for this program may be applied to the Culinary Arts Program.

Statistics show that the food service industry is America's #1 retail employer. In Wisconsin and throughout the nation, there is an increasing need for well-trained food service personnel for restaurants, catering enterprises, health care facilities and other institutional food service establishments.

Graduates of this program typically earn $16,000 to $20,000 per year.

This program is designed to be completed in two semesters; however, students may attend selected courses on a part-time basis if desired.

Competency in Windows, Internet and basic word processing is necessary for success in this program. Students may take Windows (10-103-134/135), Word–Beginning (10-103-137) and/or Internet Introduction (10-103-146) during the first semester if they do not meet this requirement.

Students must have appropriate competency in math, reading and writing to succeed in this program. If remedial course work is recommended, it is suggested that these courses be completed before beginning the Food Service Production program courses.

Potential students must be physically able to lift 50# on a routine basis and stand for a minimum of eight hours per day. They should also have good communication and social skills to be successful in this program.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

First Semester		Credits	Hrs/week Lec-Lab
10-316-101	Principles of Sanitation*	1	1-0
10-316-106	Food Theory*	2	2-0
10-316-111	Professional Cooking 1*	4	0-8
10-316-118	Meat Cutting	1	0.5-1
10-316-112	Cuisines of the World	4	0-8
	Semester Total	**12**	

Second Semester			
10-316-108	Culinary Baking Fundamentals**	1	1-0
10-316-115	Culinary Baking Lab**	2	0-4
10-316-121	Professional Cooking 2	4	0-8
10-316-139	Catering	2	1-2
10-316-152	Nutrition	2	2-0
10-316-194	Culinary Internship	2	0-8
10-316-189	Breakfast Cookery	1	0-2
	Semester Total	**14**	

All culinary related (10-316-xxx) courses are offered only in semester shown. See prerequisite/co-requisite information listed in the course description for each course.

* Principles of Sanitation, Food Theory and Professional Cooking 1 must be taken concurrently and a grade of C or better is required to continue with second semester courses.

**Baking Theory and Culinary Baking Lab must be taken concurrently.

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Program Courses

10-316-101 Principles of Sanitation 1 credit
Covers food service sanitation principles and the role of food service personnel in the prevention of contamination and food borne illness. Certification through the National Restaurant Association Educational Foundation is a requirement for completion and can be used to apply for state certification. Prerequisite: Appropriate Reading Placement test score or equivalent course.

10-316-106 Food Theory 2 credits
This lecture class teaches students basic culinary technique, classifications, equipment identification and all rudimentary aspects of professional cooking. Discussion includes culinary history, food group identification, and raw and cooked food classifications. Topics also cover stock making, knife skills, and equipment operation. Co-requisite: 10-316-111 and prerequisite of appropriate Reading Placement test score or equivalent course.

10-316-108 Culinary Baking Fundamentals 1 credit
This course provides an overview of basic baking principles and knowledge of the functions of major ingredients used in culinary baking. There are in depth lectures as well as practice of plating techniques for Gourmet service. How to set up a pastry station in a restaurant setting is discussed. Prerequisite: Appropriate Reading Placement test score or equivalent course and concurrent enrollment in Culinary Baking Lab.

10-316-111 Professional Cooking 1 4 credits
Students apply classroom work and lectures into hands-on cooking situations. All methods of cookery are covered and knife skills and other vital techniques are reinforced. Students experience practical situations as they produce food in a simulated food service environment. Emphasis on regional cookery, fusion cooking, classical cuisine and Nouvelle cuisine. Students create menus from scratch and interpret more refined recipes. Prerequisite or concurrent enrollment in 10-316-101; concurrent enrollment in 10-316-106 and appropriate Math Placement test score or equivalent course.

10-316-112 Cuisines of the World 4 credits
Students will explore foods from North America and other prominent regions of the world. Gives students the opportunity to further practice and reinforce cooking techniques and knife skills needed to produce stocks and sauces, starches, meats, and other food items. Protein fabrication and heat transfer techniques are also covered. Prerequisite or concurrent enrollment in 10-316-101; concurrent enrollment in 10-316-106 and appropriate Math Placement test score or equivalent course.

10-316-115 Culinary Baking Lab 2 credits
Introduces students to the fundamentals of production baking through hands-on application in a modern baking lab using production equipment. Students prepare a variety of standard bakery products, such as cookies, muffins, pies and breads, to obtain knowledge of the many processes of baking. Students also practice basic cake decorating techniques. Prerequisites: 10-316-101 and 10-316-111 and concurrent enrollment in 10-316-108.

10-316-118 Meat Cutting 1 credit
Provides hands-on experience of cutting and fabricating wholesale cuts of meat. The importance of safety and hygiene, equipment utilization and yield costing are also discussed. Prerequisite or co-requisite: 10-316-101 and 10-316-111 and prerequisite of appropriate Reading Placement test score or equivalent course.

10-316-121 Professional Cooking 2 4 credits
Continuation of 10-316-111 with emphasis placed on the demands of "cutting edge" cuisine. Students elevate their skills to such diversity as infusions, emulsions, terrines, reductions, and fat free cuisine. Students interpret intense recipes, create dishes from scratch, and research international cuisine. Students prepare themselves for the rigor of the food service industry as they fine-tune all their skills. Research will be done on modern cuisine and trends. "Great American Chef Tours" including examination of the culinary epicenters of New York, San Francisco, and New Orleans. Students learn the specialty of catering, gourmet store operation, and private chef occupations. Prerequisite: grade of C or better in 10-316-101, 10-316-106 and 10-316-111.

10-316-139 Catering 2 credits
Provides an understanding of catering concepts through demonstration and hands-on experience by completing various food functions. The events vary from black tie multi-course dinners for the community to BBQ lunches. Prerequisites: grade of C or better in 10-316-101 and 10-316-111.

10-316-152 Nutrition 2 credits
Provides information about nutrition as it applies to the food service industry. The six classes of nutrients are covered as well as the latest guidelines set forth by governmental agencies and health organizations. Students learn about healthful cooking methods needed to modify and create menus for specific health concerns. The role of diet in disease prevention is also discussed.

10-316-189 Breakfast Cookery 1 credit
Students will learn the principles and techniques of breakfast food preparation in a simulated work environment. Products will include eggs, omelets, batters, and starches. Prerequisite: 10-316-101 and 10-316-111.

10-316-194 Culinary Internship 2 credits
This course is designed to give students an opportunity to gain practical work experience through a supervised internship at an approved job site. This course is intended to complement and enhance program core courses. Selection of a site is based on the student's individual professional objectives. Prerequisites: for Culinary Arts students—grade of C or better in 10-316-111 and 10-316-121, 10-316-101, 10-316-115, 10-316-106 and 10-316-108; for Food Service Production students—grade of C or better in 10-316-111, 10-316-101, 10-316-115, 10-316-106, 10-316-108 and concurrent enrollment in 10-316-121.

Career Potential:

- **Cook**
  Prepares various foods, such as meats, vegetables, soups and sauces, as directed by a chef or kitchen manager.
- **Assistant Cook**
  Assists with the preparation of meats, starches and vegetables under the guidance of a chef or kitchen manager.
- **Deli Worker**
  Slices meats and cheeses, cleans lettuce and assembles/prepares salads, cold and hot sandwiches and take-out entree items.
- **Bakery Helper**
  Assists in the preparation of bakery products such as cookies, muffins and breads under the direction of the baker.
- **Short Order Cook**
  Prepares fast food items such as hamburgers, french fries and grilled sandwiches.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Health Club Technician Certificate

Program Number: 90-109-1

Certificate

Hospitality Program Cluster

Center for Business and Applied Arts

Certificate courses offered at Madison Campuses

For information call: (608) 246-6372 or (800) 322-6282 Ext. 6372

About the Certificate

The Health Club Technician Certificate qualifies people for employment as personal trainers, fitness instructors and activity directors in health clubs and recreational centers. The certificate requires one-year for completion and consists of 16 credits. Students are prepared to take certifications for the American Red Cross and the American Council on Exercise (ACE) upon completion of this certificate.

This certificate compliments the material covered in the Recreation Management Program and is open to students enrolled in that program as well as Liberal Studies/ Transfer students wishing to pursue degrees and/or careers in sports medicine, physical therapy or related fields. Individuals already working in the field who have three years of fitness-industry direct experience, or five years, post-high school, full-time work experience are also eligible for acceptance into this certificate program. For further information, please contact: Peter Vlisides, lead instructor, 608-246-6695 or pvlisides@matcmadison.edu.

Students who complete this certificate typically earn $18,000 to $24,000 per year.

Unique Requirements for Admission

This certificate requires an internal application that can be obtained from the department office. Students register for individual courses during the open registration period each semester. An application for the college is not required to take classes for this certificate. However, due to popularity of these courses, it is recommended that potential students apply for the Recreation Management-Activity Fitness Leader program to improve their chances of registering for desired classes.

It is the student's responsibility to request the certificate from the Center for Business & Applied Arts office (608-246-6372) once all required classes have been completed and grades have been received. A grade of C or better is required in each course to award the certificate.

Courses

10-109-107 Recreation CPR/First Aid 2 credits
Provides training in CPR, first aid and AED techniques for emergencies more likely to be encountered by recreation professionals. Students receive American Red Cross certification in CPR, Standard First Aid and AED.

10-109-138 Health Club Operations and Management 3 credits
Covers a wide range of topics about the fitness industry. Topics include: industry statistics, history, facility classifications, marketing, membership sales, equipment purchasing, maintenance, hiring, staffing, trade organizations and more. Upon completion, the student will have a solid understanding of how the fitness industry functions.

Curriculum

		Credits	Hrs/week Lec-Lab
First Semester (Fall)			
10-109-138	Health Club Operations and Management	3	3-0
10-807-160	Body Structure and Function	3	3-0
20-807-255	Prevention and Care of Athletic Injuries	2	2-0
	Total	**8**	
Second Semester (Spring)			
10-109-107	Recreation CPR/First Aid	2	1.5-1
10-109-173	Group Exercise Leadership & Certification*	3	1-4
	Total	**5**	
Summer Semester			
10-109-176	Personal Trainer Development*	3	1.5-3
	Total	**3**	

* These courses prepare students for national certification with the American Council on Exercise (ACE).

All courses are offered only in semester shown and should be taken in order listed.

10-109-176 Personal Trainer Development 3 credits
ACE PREP COURSE—Students are taught the skills and information on developing exercise programs for healthy adults. This course also prepares individuals to take the American Council on Exercise national personal trainer exam. A broad range of topics is covered including anatomy, exercise physiology, health screening, fitness testing and more. An observational research paper on a trainer-client relationship is required. Prerequisite: 10-807-160, Body Structure and Function.

10-109-173 Group Exercise Leadership & Certification 3 credits
This course prepares individuals to teach group exercise and recreation for different age groups and take the American Council on Exercise National Exam. It is a comprehensive training program that covers topics such as exercise physiology, anatomy, body mechanics, and safety, choreography development, teaching methodologies, and group dynamics. Students have the option to earn Madison College Instructor Certification. Recommend taking 10-807-160 or equivalent.

10-807-160 Body Structure and Function 3 credits
Features lectures and activities dealing with the anatomy and physiology of the human body. Covers body systems, including the respiratory, cardiovascular, skeletal, nervous and muscular systems. Presents information on chemistry, cell structure and metabolism. Units in exercise physiology and contemporary fitness issues included.

20-807-255 Prevention and Care of Athletic Injuries 2 credits
An introduction to the care and prevention of athletic injuries including emergency care, taping techniques, and treatment/ rehabilitation of injuries. Also useful for students interested in the field of athletic training, teaching or coaching.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Home Baking Certificate

Program Number: 90-314-1

Certificate

Hospitality Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Program

This certificate offers a hands-on experience in baking fundamentals for the serious home baker. Students will obtain the practical and theoretical knowledge necessary to make an assortment of quality bakery products from scratch. Mastery is not the intention, but rather an introduction into the world of the baker and pastry chef. All classes are held in a commercial bakery lab and students will receive hands-on instruction in equipment use.

After completion of any of the courses, students who decide to pursue a baking career may apply (fall only) for the one year Baking/Pastry Technical Diploma Program. Please note that there is typically a one- to two-year wait for the program.

This certificate does not require an application to the college. Students register for individual courses during the open registration period each semester.

Unique Requirements for Completion

It is the student's responsibility to request the certificate from the Business and Applied Arts Center (608-246-6339) once all required classes have been completed and grades have been received. A grade of C or better is required in each course to award the certificate.

Curriculum

Courses		Credits	Hrs/week Lec
Fall			
31-314-383	Cake Decorating with Fondant 1	1	0-2
31-314-387	Cake Decorating with Fondant 2	1	0-2
	Semester Total	**2**	
Spring			
31-314-395	Plated Desserts	1	0-2
31-314-321	Pastries	1	0-2
	Semester Total	**2**	
Interim/Summer			
31-314-393	Dietary Baking	1	0-2
31-314-371	Discriminating Chocolate	1	0-2
	Semester Total	**2**	

NOTE: Courses may be taken in any order and may be taken individually. Courses offered only in the semester shown.

Required Courses

31-314-383 Cake Decorating with Fondant 1 1 credit

Rolled fondant is a popular icing that bakers use when they want a smooth finish on a cake. Students learn how to ice a cake in fondant, including marbleizing, paint and emboss on fondant, make simple cut-out decorations and create petal flowers and leaves. Projects include decorating a cake with a floral theme, and one with cutouts.

31-314-387 Cake Decorating with Fondant 2 1 credit

In this continuing class, students learn how to make roses and bows out of fondant and apply luster dust. Beginning piping with royal icing is practiced. Projects include decorating a cake with roses, ribbons and bows, and creating a shaped cake.

31-314-395 Plated Desserts 1 credit

Students learn basic designs that are elegant ways to add the "wow factor" to simple desserts. Students will create boxes, bowls and baskets that can be filled and eaten, along with the sauces and garnishes that put the desserts over the edge. With these little luxuries you won't have to lick the plate clean, you can just eat it!

31-314-321 Pastries 1 credit

Develop the manual skills and knowledge needed to produce a variety of classic pastry doughs and fillings. Create flakey pie crusts, tender tarts, crisp pâte á choux, and classic puff pastry. Students produce wonderful pastries from these bases such as fruit pies, an assortment of tarts, cream puffs, éclairs, apple turnovers and palmiers.

31-314-393 Dietary Baking 1 credit

With dietary concerns more of an issue, students will gain knowledge on how to produce delicious bakery that fits within particular dietary parameters. Vegan, wheat-free, and low fat are some of the specific health concerns that will be addressed. Ingredient substitutions will be discussed as well as how to modify a recipe. Gluten-free and vegan cookies and cakes will be made in the lab.

31-314-371 Discriminating Chocolate 1 credit

Students will gain a basic introduction into the world of chocolate. Learn to distinguish between a 55% and 75% chocolate and what the difference means. An assortment of ten different chocolates will be taste tested and a variety of products will be made with them including chocolate mousse, fudgy brownies and Ganache centers.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Hotel and Restaurant Management

Program Number: 10-109-2

Associate in Applied Science Degree

Hospitality Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Program

The hospitality and tourism industry is the fastest growing industry in the world and the second largest industry in Wisconsin. One out of every 10 workers in Wisconsin is employed in the hospitality and tourism industry. Career opportunities are limitless; however, the expectation for greatest growth is in management and supervisory positions.

The Hotel and Restaurant Management program is designed to develop competencies in leadership, problem solving, communications, cost control, and motivation, team-building, human relations and life skills as they apply to the hospitality and tourism industry.

Through a combination of classroom and on-the-job experiences, the program develops highly skilled entry-level employees to perform in any area of the hospitality and tourism industry. Major components of the industry include: lodging, food service, resort operation, sports facility operation, tourism marketing, special events and festivals, and meetings and conventions.

Hotel and Restaurant Management program credits transfer to UW–Stout towards the Hospitality and Tourism Management degree.

Graduates of this program typically earn $28,500 to $35,000.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			**Hrs/week**
First Semester		**Credits**	**Lec-Lab**
10-109-101	Introduction to Tourism Services	2	2-0
10-104-102	Marketing Principles	3	3-0
10-801-195	Written Communication	3	3-0
10-804-123	Math with Business Applications	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Semester Total	**14**	
Second Semester			
10-101-116	Hotel/Restaurant Accounting 1*	3	3-0
10-109-102	Fundamentals of Meeting Management	3	3-0
10-109-136	Tourism Law	3	3-0
20-810-205	Interpersonal/Small Group Communication **OR**	3	3-0
10-801-196	Oral/Interpersonal Communication	(3)	(3-0)
10-802-100	Occupational Spanish/Conversation for Tourism	3	3-0
10-809-197	Contemporary American Society	3	3-0
	Semester Total	**18**	
Summer Semester			
10-109-157	Hospitality Internship* (Field Experience)	2	0-8
SECOND YEAR			
First Semester			
10-101-117	Hotel/Restaurant Accounting 2*	3	3-0
10-109-124	Fundamentals of Food Preparation*	2	1-2
10-109-125	Tourism Management	3	3-0
10-109-141	Hospitality Internship Seminar*	1	1-0
10-102-145	Introduction to Human Resources	3	3-0
10-316-101	Principles of Sanitation*	1	1-0
	Elective	3	E
	Semester Total	**16**	
Second Semester			
10-109-120	Tourism Business Planning*	3	3-0
10-109-131	Rooms Division Operations*	3	3-0
10-109-134	Hotel/Restaurant Cost Control	3	3-0
10-809-166	Intro to Ethics: Theory & App **OR**	3	3-0
20-809-276	Business Ethics**	(3)	3-0
10-809-195	Economics	3	3-0
	Elective	3	E
	Semester Total	**18**	

* Courses offered only in semester shown.

** Other course options are available. See program advisor for information.

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Program Courses

10-101-116 Hotel/Restaurant Accounting 1 3 credits
A study in the design and use of specialized accounting and financial control systems in management decision-making for hotels and restaurants.

10-101-117 Hotel/Restaurant Accounting 2 3 credits
Procedures of accounting for hotels and restaurants. Additional topics include analysis of hospitality financial statements, property and equipment, inventory accounting, and hospitality payroll accounting. Prerequisite: 10-101-116 or equivalent.

10-109-101 Introduction to Tourism Services 2 credits
Introduces new students to the broad spectrum of the leisure services industry. Typical career areas include food service, lodging, travel/tourism, and recreation. The course explores educational options and program career opportunities as well as historical and operational perspectives of the career areas mentioned.

10-109-102 Fundamentals of Meeting Management 3 credits
Students explore the core issues of meeting planning from the fundamentals to the new trends shaping the meetings industry. Development of meeting timelines, checklists and request for proposal are introduced. Further focus includes the process meeting planners must use in site selections, the value of meeting objectives and format, and attendee expectations.

10-109-120 Tourism Business Planning 3 credits
Examines the historical development, growth, trends and future directions of profit-oriented commercial tourism. Surveys tourism, recreation and hospitality industries; focuses on starting, marketing and managing a tourism enterprise. Students create commercial tourism business plans.

10-109-124 Fundamentals of Food Preparation 2 credits
Students learn fundamental knife skills, basic food preparation and how to properly store food. Kitchen organization, setup and cleaning; stations of the kitchen and simple menu planning techniques are also discussed. Prerequisite or concurrent enrollment in 10-316-101.

10-109-125 Tourism Management 3 credits
Introduces theories, principles and practical application of management skills in the hospitality and tourism industry. Students analyze their current skills and develop a personal management philosophy appropriate to the service industry.

10-109-129 Tourism Marketing 3 credits
Focuses on the application of sound marketing practices and tools to develop businesses in food service, lodging, recreation, tourism, and destination management.

10-109-131 Rooms Division Operations 3 credits
Investigates the organization, performance and evaluation of the rooms division of a lodging facility (front desk, reservations, housekeeping and telephone systems) as essential components of operational success and guest satisfaction.

10-109-134 Hotel/Restaurant Cost Control 3 credits
Presents concepts and techniques of cost control in the hospitality industry. Students select and apply methods, procedures and systems to control costs, and analyze the application, theory and concepts. Students forecast and prepare budgets and income statements, and complete a break-even analysis.

10-109-136 Tourism Law 3 credits
A preventive approach to the laws and liabilities, as well as responsibilities of owners/operators of hotels, restaurants and travel facilities. Reviews precedent-setting court decisions, legal fundamentals, negligence doctrines, civil rights issues and the relationship between providers and the guests/clients.

10-109-141 Hospitality Internship Seminar 1 credit
A discussion and analysis of the field experience. Topics include interviewing skills, cover letters, resumes, business ethics, professional appearance and dressing. Provides opportunities to discuss current issues with industry representatives.

10-109-157 Hospitality Internship (Field Experience) 2 credits
Provides on-the-job field experience required for graduation from the program. Requirements include fifteen hours per week of work experience, a written report analyzing four major management responsibilities, and a professional oral presentation of the written report. Prerequisite: Two semesters in the Hospitality and Tourism Management program.

10-196-193 Human Resources Management 3 credits
Provides improved understanding of human resources/ personnel management function, techniques and concepts to improve quality of work life and employee satisfaction.

10-316-101 Principles of Sanitation 1 credit
Covers food-service sanitation principles and the role of food service personnel in the prevention of contamination and food-borne illness. Certification through the Educational Foundation of the National Restaurant Association is a requirement for completion and can be used to apply for state certification.

Recommended Electives:

10-103-133 Excel-Beginning 1 credit

10-103-143 PowerPoint 1 credit

10-109-137 Wine Appreciation 1 credit
Designed to develop or increase students' knowledge of wine. Students are provided with the basics of wine tasting, the wine making process, how to serve wine, how to select wine for food and food for wine. Includes discussion of wine regions, different grapes and how to read wine labels. Students must be 21 to enroll.

10-109-144 Disney College Internship 3 credits
This course provides credit for work experience for students selected to participate in the Disney College Program at Walt Disney World in Florida.

10-109-146 Disney College Seminar 3 credits
This course provides credit for the workshops and seminars required by participants in the Disney College Program.

20-890-200 College Success 1-3 credits
Recommend taking in first semester.

Career Potential:

- **Restaurant Manager**
- **Assistant Food and Beverage Manager**
- **Hotel Front Office Manager**
- **Hotel Executive Housekeeper**
- **Hotel Sales Manager**
- **Meeting Planner**

With additional education and/or experience, graduates may find employment as:

- **Association Executive**
- **Department Head**
- **Regional Manager**
- **District Manager**
- **Director**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Effective: 2010-2011

Meeting and Event Management

Program Number: 10-109-6

Associate in Applied Science Degree

Hospitality Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Program

The Meeting and Event Management Degree program is designed to prepare students for highly responsible positions in the convention, conference and meeting planning profession. Develop negotiation, decision-making, problem-solving and communication skills. Learn about site selection, contract law, logistics coordination, tradeshow management, financial management and related areas of convention, meeting and event management.

Major responsibilities of those employed in the meeting and event management industry include:

- On-site Management
- Marketing
- Client and Vendor Relations
- Contracts and Risk Management
- Program Development
- Budgeting
- Coordination of Logistics

Graduates may be employed by: professional associations, corporations, non-profit organizations, conference centers, hotels, resorts and special event venues.

This program is endorsed by Meeting Professionals International – Wisconsin Chapter, a community of the world's largest professional organization for meeting professionals.

Receive the most comprehensive meeting and event management education in the United States.
New! Entire Degree is offered Online and in the classroom.

Learn from the leaders in the meetings' industry that provides REAL information for REAL application in today's job market.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-103-133	Excel-Beginning	1	0.75-2.25
10-101-106	Accounting Concepts	3	3.0
10-109-101	Introduction to Tourism Services	2	2-0
10-109-102	Fundamentals of Meeting Management	3	3-0
10-801-195	Written Communications	3	3-0
10-109-111	Registration and Housing Logistics	2	2-0
10-804-123	Math with Business Applications	3	3-0
	Semester Total	**17**	
Second Semester			
10-109-104	Program Design and Development*	3	3-0
10-109-108	Meetings Industry Budget and Financial Management	2	2-0
10-109-116	Fundamentals of Green Meetings	2	2-0
10-104-102	Marketing Principles	3	3-0
20-810-205	Interpersonal/Small Group Communication **OR**	3	3-0
10-801-196	Oral/Interpersonal Communication	(3)	(3-0)
10-802-100	Occupational Spanish/Conversation for Tourism*	3	3-0
	Semester Total	**16**	

SECOND YEAR			
First Semester			
10-109-109	Special Event Management*	3	3-0
10-109-110	Meeting Coordination	3	3-0
10-109-112	Exposition Management*	2	2-0
10-109-125	Tourism Management OR	3	3-0
10-104-113	Leadership Strategies in Marketing	(3)	(3-0)
10-809-172	Race, Ethics and Diversity Studies	3	3-0
10-809-195	Economics	3	3-0
	Semester Total	**17**	
Second Semester			
10-109-113	Risk Management, Negotiations and Legal Issues*	3	3-0
10-109-114	Meeting and Event Management Internship*	2	0-8
10-109-117	Partnership Development*	2	2-0
10-809-197	Contemporary American Society	3	3-0
10-809-199	Psych of Human Relations	3	3-0
	Elective	3	E
	Semester Total	**16**	

* Courses offered only in semester shown.

Program Courses

10-109-101 Introduction to Tourism Services 2 credits
Introduces new students to the broad spectrum of the leisure services industry. Typical career areas include food service, lodging, travel/tourism, and recreation. The course explores educational options and program career opportunities as well as historical and operational perspectives of the career areas mentioned.

10-109-102 Fundamentals of Meeting Management 3 credits
Students explore the core issues of meeting planning from the fundamentals to the new trends shaping the meetings industry. Development of meeting timelines, checklists and request for proposal are introduced. Further focus includes the process meeting planners must use in site selections, the value of meeting objectives and format, and attendee expectations.

10-109-104 Program Design and Development 3 credits
The design and development of learning experiences have many implications that meeting planners must incorporate. Students explore adult learning styles and theories as well as develop tools and techniques to ensure the meetings success and a positive return on investment. Identifying the stakeholder objectives and learner outcomes determines the subject matter content, appropriate educational approach and meeting setting. Constructive and well-organized program planning is vital to the successful development of education programs and the meeting outcome.

10-109-108 Meetings Industry Budget and Financial Management 2 credits
Establishing a realistic and sound budget is vital to creation of successful meetings. This course examines the steps in developing a meeting budget. Students learn techniques for projecting and managing budgets including per person methodology and break-even analysis. Emphasis is placed on situations oriented to the meeting industry. Prerequisites: 10-103-133 and 10-109-102.

10-109-109 Special Event Management 3 credits
Demonstrates professional practices used to create, market, plan and implement incentive programs and special events. Emphasis is on applying creativity to develop events with unique purposes and presentations combining elements such as site selection, décor, lighting, sound, and entertainment as well as food and beverage to reflect the theme of the event. Prerequisite or co-requisite: 10-109-102.

10-109-110 Meeting Coordination 3 credits
Provides a solid understanding of the numerous tasks and details involved in developing and coordinating a meeting and/or event. Students explore meeting room design, commonly used audio-visual equipment, the use of speakers, and how effective management of food and beverage impact successful meeting and event planning. Prerequisite: 10-109-102.

10-109-111 Registration and Housing Logistics 2 credits
Registration is the first impression that attendees have of your meeting. Careful planning in designing a registration process is critical to setting attendees expectations, perceptions and the tone of the meeting. Meeting participants want and need comfortable and convenient accommodations, to their exact requirements. Creating rooming lists, coordinating the housing logistics, and managing sleeping room blocks to reduce or eliminate attrition are critical success factors for the planner and the meeting. This course enables students to identify and develop tools that allows attendees a seamless meeting experience. Co-requisites: 10-103-133 and 10-109-102.

10-109-112 Exposition Management 2 credits
Provides the student with an understanding of the growing role of trade shows as a source of revenue for the sponsor as well as an opportunity for buyers and sellers to interact face-to-face in an educational environment. Building an exposition from the start of the planning process through the close of the show is presented. Students create a request for proposal; identify contractors necessary for producing the show; and learn how to effectively interact and communicate with exhibitors throughout the process. Post-show evaluations to measure results also are explored. Prerequisite: 10-109-102.

10-109-113 Risk Management, Negotiations and Legal Issues 3 credits
Includes crisis planning and risk management, the art and science of negotiations, and contract and legal issues in the meetings industry. Students learn how to identify issues that are negotiable, the steps in the negotiation process and commonly used negotiation techniques. The class also focuses on basic contract provisions and key clauses of a facility contract as well as the unique elements and differences of hotel and convention center contracts. Includes discussion of legal principles and precedents as they apply to the meetings industry. Prerequisites: 10-109-102 and 10-109-110.

10-109-114 Meeting and Event Mgmt. Internship 2 credits
Course provides both theoretical and hands-on experience planning, setting up and managing a meeting or event. Emphasis is on developing and implementing proper procedures to ensure professional results. The student is required to use their knowledge of finance, decision making, problem solving, organization and communication. Prerequisite: Forth semester program student or consent of instructor.

10-109-117 Partnership Development 2 credits
Students learn how to analyze a meeting to identify sponsorship and fundraising opportunities. These partnerships build support for a meeting, increase marketing effectiveness, and increase meeting profitability. Prerequisite: 10-109-102 and 10-109-108.

10-109-125 Tourism Management 3 credits
Introduces theories, principles and practical application of management skills in the hospitality and tourism industry. Students analyze their current skills and develop a personal management philosophy appropriate to the service industry.

10-109-116 Fundamentals of Green Meetings 2 credits
Provides solid foundation to execute a socially responsible and environmentally responsible meeting or event. Students will explore core strategies and principle s of a green meeting as well as tools and resources available to plan a green meeting or event.

Recommended Electives

10-103-139	Excel Intermediate	1 credit
10-196-188	Project Management	3 credits
10-801-198	Speech (or Interpersonal/Small Group Communications)	3 credits

Career Potential:

- **Conference Managers**
- **Marketing and Special Event Managers**
- **Convention Sales Managers**
- **Meetings Coordinators**
- **Directors of Educational Programs**
- **Meetings Services Managers**
- **Project Managers of Meetings and Events**
- **Senior Event Coordinators**
- **Program Managers**
- **Special Event Coordinators**
- **Conference and Travel Service Managers**
- **Operations Managers**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/10

Madison Area Technical College

Meeting and Event Management Certificate

Effective: 2010-2011

Program Number: 90-109-3

Certificate

Hospitality Program Cluster

Center for Business and Applied Arts

Certificate courses offered at Madison Campuses and entirely online.

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Certificate

The Meeting and Event Management Certificate is designed for individuals who need experience or have some experience in the meeting planning industry and want to gain additional skills and knowledge. Nationally recognized professionals who will bring you the latest developments in the meetings industry and their areas of expertise teach the courses.

The program begins with an overview of meeting management and includes courses that focus on core issues of meeting planning. Marketing assistants, administrative professionals, and others who have different primary job responsibilities but plan meetings and/or events find this certificate useful in expanding and enhancing their meeting planning knowledge and skill set.

This certificate has been designed exclusively for business professionals and is endorsed by Meeting Professionals International Wisconsin Chapter.

Unique Requirements for Admission

This certificate does not require an application to the college. However, due to the popularity of the courses in this certificate, it is recommended that students apply for the Meeting and Event Management program to improve their chances of being able to register for the desired classes. Students who choose not to apply for the program register for individual courses during the open registration period each semester.

It is the student's responsibility to request the certificate from the Center for Business and Applied Arts office (608-246-6372) once all required classes have been completed and grades have been received. A grade of C or better is required in each course to award the certificate.

Curriculum

COURSES

			Hrs/week
First Semester (Fall)		**Credits**	**Lec-Lab**
10-103-133	Excel-Beginning	1	0.75-2.25
10-109-102	Fundamentals of Meeting Management	3	3.0
10-109-111	Registration and Housing Logistics	2	2-0
	Semester Total	**6**	
Second Semester (Spring)			
10-109-108	Meetings Industry Budget & Financial Mgmt	2	2-0
10-109-110	Meeting Coordination	3	3-0
	Semester Total	**5**	

Courses

10-109-102 Fundamentals of Meeting Management 3 credits
Students explore the core issues of meeting planning from the fundamentals to the new trends shaping the meetings industry. Development of meeting time lines, checklists and request for proposal are introduced. Further focus includes the process meeting planners must use in site selections, the value of meeting objectives and format, and attendee expectations.

10-109-108 Meetings Industry Budget and Financial Management 2 credits
Establishing a realistic and sound budget is vital to creation of successful meetings. This course examines the steps in developing a meeting budget. Students learn techniques for projecting and managing budgets including per person methodology and break-even analysis. Emphasis is placed on situations oriented to the meeting industry. Prerequisites: 10-103-133 and 10-109-102.

10-109-110 Meeting Coordination 3 credits
Provides a solid understanding of the numerous tasks and details involved in development and coordinating a meeting and/or event. Students explore meeting room design, commonly used audio-visual equipment, the use of speakers, and how effective management of food and beverage impact successful meeting and event planning. Prerequisite: 10-109-102.

10-109-111 Registration and Housing Logistics 2 credits
Registration is the first impression that attendees have of your meeting. Careful planning in designing a registration process is critical to setting attendees expectations, perceptions and the tone of the meeting. Meeting participants want and need comfortable and convenient accommodations, to their exact requirements. Creating rooming lists, coordinating the housing logistics, and managing sleeping room blocks to reduce or eliminate attrition are critical success factors for the planner and the meeting. This course enables students to identify and develop tools that allow attendees a seamless meeting experience. Prerequisites: 10-103-133 and 10-109-102.

Career Potential:

- **Meeting Planners**
- **Conference Coordinators**
- **Meeting Coordinators**
- **Event Coordinators**

With additional education and/or experience graduates may find employment as:

- **Conference Managers**
- **Special Event Managers**
- **Convention Sales Managers**
- **Convention Service Managers**
- **Meeting Managers**
- **Director of Educational Programs**
- **Meeting Services Managers**
- **Senior Meeting and Event Coordinators**
- **Program Managers**
- **Director of Special Events**
- **Directors of Conferences and Meetings**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Nail Technician Certificate

Program Number: 90-502-1

Certificate

Hospitality Program Cluster

Center for Business and Applied Arts

Program offered at Downtown Education Center, Madison

For more information call: (608) 258-2405 or (800) 322-6282 Ext. 2405

About the Certificate

Join an exciting career of professionals who specialize in personal image development. The employment opportunities for a Nail Technician (licensed manicurist) exist in beauty salons, barber shops, health spas, the fashion industry and in sales and marketing positions. The 300-hour, semester-long coursework provides you with excellent instruction in a new facility and prepares you for the State License Exam.

Nail training curriculum includes both theoretical instruction and clinical training. Theoretical topics include history and ethics; law, bookkeeping and management; safety, sanitation and disinfection; bacteriology; nail and skin disorders; anatomy and physiology; product knowledge and introduction to advertising. Clinical training includes manicuring and pedicuring (basic and advanced techniques), artificial nail application, fiberglass, sculptured nails, gel nails and nail art.

A supply kit and textbook are required for this certificate. These items are purchased the first day of class at an approximate cost of $500.00.

Curriculum

Courses		Credits	Hrs/week Lec-Lab
30-502-309	Nail Techniques & Skills 1	4	4 – 4
30-502-310	Nail Techniques & Skills 2	5	4 – 6
	Semester Total	**9**	

Courses

30-502-309 Nail Techniques & Skills 1 **4 credits**
Initial nail technician course which along with Nail Techniques & Skills 2 provides students with a Nail Technician certificate. This course covers mainly the theoretical component of the curriculum along with some clinical training.

30-502-310 Nail Techniques & Skills 2 **5 credits**
This course is a continuation of Nail Techniques & Skills 1 containing the remaining clinical training which prepares the student for the State License Exam for Nail Technician.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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MADISON AREA TECHNICAL COLLEGE

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Madison Area Technical College

Recreation Management: Activity / Fitness Leader

Effective: 2010-2011

Program Number: 10-109-4

Associate in Applied Science Degree

Hospitality Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Program

The Recreation Management program develops competencies in technical, problem-solving, human relations and management skills that are needed for employment. The program develops an ability to plan, implement and evaluate recreation programs. Students may serve as center directors; pool directors; hotel, resort or cruise ship social directors; YMCA/YWCA program leaders; and health club staff. Job opportunities may also exist in campgrounds, sports centers, ski areas and theme parks.

Graduates of this program typically earn $22,000 to $32,000 per year.

Recreation Management program credits transfer to George Williams College, Aurora University for the Recreation Management degree.

Program Courses

10-109-101 Introduction to Tourism Services 2 credits
Introduces new students to the broad spectrum of the leisure services industry. Typical career areas include food service, lodging, travel/tourism, and recreation. The course explores educational options and program career opportunities as well as historical and operational perspectives of the career areas mentioned.

10-109-103 Recreation and Leisure in Modern Society 3 credits
History, development, nature, significance and relationship of leisure and recreation in today's world are studied. In addition, the psychology of recreation supply and demand is investigated. Characteristics of group leisure are also examined.

10-109-106 Programming and Public Relations 3 credits
This course provides an investigation of planning, organizing, conducting and evaluating recreation experiences, support systems and public relations in private, public and commercial agencies. Prerequisite: 10-109-103.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			**Hrs/week**
First Semester		**Credits**	**Lec-Lab**
10-109-101	Introduction to Tourism Services	2	2-0
10-109-103	Recreation and Leisure in Modern Society	3	3-0
10-103-137	Word-Beginning	1	0.75-2.25
10-103-140	Publisher	1	0.75-2.25
10-801-195	Written Communication	3	3-0
10-807-160	Body Structure and Function*	3	3-0
10-890-100	College Student Success	1	1-0
	Semester Total	**14**	
Second Semester			
10-103-133	Excel–Beginning	1	0.75-2.25
10-103-143	PowerPoint	1	0.75-2.25
10-104-102	Marketing Principles	3	3-0
10-109-106	Programming and Public Relations*	3	3-0
10-109-171	Recreation Internship Development*	1	1-0
10-109-173	Group Exercise Leadership & Certification*	3	2-2
10-801-196	Oral/Interpersonal Communication	3	3-0
	Elective	2	E
	Semester Total	**17**	
Summer			
10-109-175	Recreation Internship Practicum*	2	0-8
	Total	**2**	
SECOND YEAR			
First Semester			
10-109-115	Recreation Administration and Management*	3	3-0
10-109-135	Recreation Activities*	3	3-0
10-109-155	Facility Operation and Maintenance 1*	3	3-0
10-809-195	Economics	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Elective	3	E
	Semester Total	**18**	
Second Semester			
10-109-107	Recreation CPR/First Aid*	2	1.5-1
10-109-160	Recreation for Special Populations*	3	3-0
10-109-190	Recreation Seminar*	1	1-0
10-804-123	Math with Business Applications	3	3-0
10-809-166	Intro to Ethics: Theory & Application **OR**	3	3-0
20-809-276	Business Ethics**	(3)	3-0
10-809-197	Contemporary American Society	3	3-0
	Semester Total	**15**	

* Courses offered in semester shown only.
** Other course options are available. See program advisor for information.

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Program Courses (continued)

10-109-107 Recreation CPR/First Aid 2 credits
Provides training in CPR, first aid and AED techniques for emergencies more likely to be encountered by recreation professionals. Students receive American Red Cross certification in CPR, Standard First Aid and AED.

10-109-115 Recreation Administration and Management 3 credits
Prepares students for entry- and mid-level management positions in the leisure services profession. The course is project oriented and will focus in the areas of budget preparation, personnel management, risk management, legal issues in leisure services, hazardous materials management, agency and program evaluation, agency scheduling, and communications. Students will develop an agency registration manual. Prerequisite: completion of at least two semesters in the Recreation Services Program.

10-109-135 Recreation Activities 3 credits
This course provides developmental activities involving sports, games, dance, outdoor recreation, travel, hobbies, volunteer activities, social recreation and special events. Projects will be planned, implemented and evaluated. Prerequisite: 10-109-106 or consent of instructor.

10-109-155 Facility Operation and Maintenance 1 3 credits
Introduces basic land-site development, building and structure maintenance, turf and grounds management, equipment acquisition and care, as well as staff and work scheduling.

10-109-160 Recreation for Special Populations 3 credits
An overview of various special populations and an understanding of their needs relative to recreational pursuits. The special populations studied include: mentally challenged, mentally ill, alcoholic and drug-dependent, physically disabled, sensory-impaired, economically deprived, racial minorities, aging and youth.

10-109-171 Recreation Internship Development 1 credit
Students analyze their job skills and career needs in order to develop targets for internship field experience. The process of establishing contractual internship opportunities is examined in detail, including developing a resume, conducting informational interviews with different agencies and utilizing competency analysis. Problem-solving skills are also examined. Prerequisite: completion of one semester in the Recreation Services Program.

10-109-173 Group Exercise Leadership & Certification 3 credits
This course prepares individuals to teach group exercise and recreation for different age groups and take the American Council on Exercise National Exam. It is a comprehensive training program that covers topics such as exercise physiology, anatomy, body mechanics, and safety, choreography development, teaching methodologies, and group dynamics. Students have the option to earn Madison College Instructor Certification. Recommend taking 10-807-160 or equivalent.

10-109-175 Recreation Internship Practicum 2 credits
Directly related to 150 hours of work experience in the recreation field. Examines the student's practical experience as well as hypothetical case studies from the viewpoint of decision-making and problem solving. Several approaches are developed and tested by field study. Prerequisite: completion of at least two semesters in the Recreation Services Program.

10-109-190 Recreation Seminar 1 credit
Designed to assist the graduating student with job placement. Self-evaluation and job-related skills, interests, attributes and achievements are discussed. The course reviews how to target job possibilities and includes practical interviewing. The concept of job networking is also stressed. Prerequisite: completion of at least two semesters in the Recreation Services Program.

10-807-160 Body Structure and Function 3 credits
Designed to provide easy to understand information about the structure and function of the human body. The focus is to develop a basic knowledge that can have practical applications in the areas of fitness, recreation and related fields.

Recommended Electives

10-109-138	Health Club Operations and Management	3 credits
10-109-176	Personal Trainer Development (Offered in summer only; may be taken in lieu of 10-807-184.)	3 credits
20-807-2xx	Physical Education Classes	1 credit
20-807-255	Prevention and Care of Athletic Injuries	2 credits

Career Potential:

- **Activity Director**
- **Health Club Technician**
- **Personal Trainer**
- **YMCA Sports Coordinator**
- **Recreation Programmer**
- **Resort Social Director**
- **Cruise Ship Activity Director**
- **Senior Center Director**

With additional education and/or work experience, graduates may find employment as:

- **Exercise Physiologist**
- **Campground Manager**
- **Recreation Director**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Recreation Management: Facility Operations Specialist

Effective: 2010-2011

Program Number: 10-109-4

Associate in Applied Science Degree

Hospitality Program Cluster

Center for Business and Applied Arts

Program offered at Madison Campuses

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Program

The program is designed to develop competencies in technical, problem-solving, human relations and management skills that are needed for employment. The program develops an ability to plan, maintain, develop, operate and protect natural and man-made resource areas, facilities and equipment, and to develop activity programming. Students may serve as park rangers, building and grounds supervisors, park resource assistants, and park and recreation specialists. Job opportunities also exist in campgrounds, sports centers, golf courses, ski areas and the Department of Natural Resources.

Graduates of this program typically earn $24,000 to $40,000 per year.

Recreation Management program credits transfer to George Williams College, Aurora University for the Recreation Management degree.

Program Courses

10-001-134 Turf and Lawn Management 3 credits
Examines how to effectively start and maintain professional appearing lawns/turf. Discusses which grasses to use, turf chemicals, equipment, and diagnosing problems. Labs include identification of weeds and several field trips to study various uses of turf.

10-001-140 Introduction to Landscape Design 3 credits
Teaches how to plan and draw a professional landscape design. Focuses on selecting correct plant material, proper placement, and uses of landscape construction elements. Lab provides practical design and drawing experience.

10-070-194 Commercial Equipment 2 credits
Uses discussion, demonstration and laboratory experiments to study air-cooled engines, both two cycle and four cycle are covered. Ignition, fuel, starting, charging and safety-interlock systems are studied. Includes commercial mowers and compact utility tractors and their attachments.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			**Hrs/week**
First Semester		**Credits**	**Lec-Lab**
10-001-140	Introduction to Landscape Design*	3	3-0
10-103-137	Word-Beginning	1	0.75-2.25
10-103-140	Publisher	1	0.75-2.25
10-109-101	Introduction to Tourism Services	2	2-0
10-109-103	Recreation and Leisure in Modern Society	3	3-0
10-801-195	Written Communication	3	3-0
10-890-100	College Student Success	1	1-0
	Semester Total	**14**	
Second Semester			
10-103-133	Excel–Beginning	1	0.75-2.25
10-103-143	PowerPoint	1	0.75-2.25
10-109-106	Programming and Public Relations*	3	3-0
10-109-171	Recreation Internship Development*	1	1-0
10-801-196	Oral/Interpersonal Communication	3	3-0
10-809-195	Economics	3	3-0
10-809-197	Contemporary American Society	3	3-0
	Elective	2	2-0
	Semester Total	**17**	
Summer			
10-109-175	Recreation Internship Practicum*	2	0-8
	Total	**2**	
SECOND YEAR			
First Semester			
10-070-194	Commercial Equipment*	2	1-2
10-001-134	Turf and Lawn Management*	3	3-0
10-109-115	Recreation Administration and Management*	3	3-0
10-104-102	Marketing Principles	3	3-0
10-109-135	Recreation Activities*	3	3-0
10-109-155	Facility Operation and Maintenance 1*	3	3-0
	Semester Total	**17**	
Second Semester			
10-109-160	Recreation for Special Populations*	3	3-0
10-109-190	Recreation Seminar*	1	1-0
10-804-123	Math with Business Applications	3	3-0
10-809-166	Intro to Ethics: Theory & Application **OR**	3	3-0
20-809-276	Business Ethics**	(3)	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Elective	3	3-0
	Semester Total	**16**	

* Courses offered only in semester shown.
** Other course options are available. See program advisor for information.

Program Courses (continued)

10-109-101 Introduction to Tourism Services 2 credits
Introduces new students to the broad spectrum of the leisure service industry. Typical career areas include food service, lodging, travel/tourism and recreation. The course explores educational options and program career opportunities. Historical and operational perspectives of career areas are presented.

10-109-103 Recreation and Leisure in Modern Society 3 credits
History, development, nature, significance and relationship of leisure and recreation in today's world are studied. In addition, the psychology of recreation supply and demand is investigated. Characteristics of group leisure are also examined.

10-109-106 Programming and Public Relations 3 credits
This course provides an investigation of planning, organizing, conducting and evaluating recreation experiences, support systems and public relations in private, public and commercial agencies. Prerequisite: 10-109-103.

10-109-115 Recreation Administration and Management 3 credits
Prepares students for entry- and mid-level management positions in the leisure services profession. The course is project oriented and will focus in the areas of budget preparation, personnel management, risk management, legal issues in leisure services, hazardous materials management, agency and program evaluation, agency scheduling, and communications. Students will develop an agency registration manual. Prerequisite: completion of at least two semesters in the Recreation Services Program.

10-109-135 Recreation Activities 3 credits
This course provides developmental activities involving music, dramatics, games, dance, outdoor recreation, travel, hobbies, volunteer activities, social recreation and special events. Projects will be planned, implemented and evaluated. Prerequisite: 10-109-106 or consent of instructor.

10-109-155 Facility Operation and Maintenance 1 3 credits
Introduces basic land-site development, building and structure maintenance, turf and grounds management, equipment acquisition and care, as well as staff and work scheduling.

10-109-160 Recreation for Special Populations 3 credits
An overview of various special populations and an understanding of their needs relative to recreational pursuits. The special populations studied include: mentally challenged, mentally ill, alcoholic and drug-dependent, physically disabled, sensory-impaired, economically deprived, racial minorities, aging and youth.

10-109-171 Recreation Internship Development 1 credit
Students analyze their job skills and career needs in order to develop targets for internship field experience. The process of establishing contractual internship opportunities is examined in detail, including developing a resume, conducting informational interviews with different agencies and utilizing competency analysis. Problem-solving skills are also examined. Prerequisite: completion of one semester in the Recreation Services Program.

10-109-175 Recreation Internship Practicum 2 credits
Directly related to 150 hours of work experience in the recreation field. Examines the student's practical experience as well as hypothetical case studies from the viewpoint of decision-making and problem solving. Several approaches are developed and tested by field study. Prerequisite: completion of at least two semesters in the Recreation Services Program.

10-109-190 Recreation Seminar 1 credit
Designed to assist the graduating student with job placement. Self-evaluation and job-related skills, interests, attributes and achievements are discussed. The course reviews how to target job possibilities and includes practical interviewing. The concept of job networking is also stressed. Prerequisite: completion of at least two semesters in the Recreation Services Program.

Recommended Electives:

10-001-111	Introduction to Horticulture	3 credits
10-001-143	Bedding Plants	3 credits
20-890-200	College Success	1-3 credits
	(Recommend taking in first semester.)	

Career Potential:

- **Arborist**
- **Campground Assistant Manager**
- **Golf Course Maintenance**
- **Golf Course Assistant Superintendent**
- **Park Ranger**
- **Sports Facility Operator**
- **Ski Facility Operator**

With additional education and/or work experience, graduates may find employment as:

- **Conservation Warden**
- **Golf Course Superintendent**
- **Park Manager**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Senior Activity Director Certificate

Program Number: 90-109-4

Certificate

Hospitality Program Cluster

Center for Business and Applied Arts

Certificate courses offered at Madison Campuses

For information call: (608) 246-6003 or (800) 322-6282 Ext. 6003

About the Certificate

The Senior Activity Director Certificate prepares you to assist and facilitate active adult recreation. The retirement of the "Baby Boomer" generation and the growing concern about the health of Wisconsin citizens will make active adult recreation an area of expanding opportunities. This certificate provides you an opportunity to develop skills in programming, planning, sports instruction, recreation administration, group fitness training, travel planning, and motivating active adults. Active learning is stressed.

Unique Requirements for Admission

This certificate does not require an application to the college. Students register for individual courses during the open registration period each semester. It is the student's responsibility to request the certificate from the Business and Applied Arts Center (608-246-6339) once all required classes have been completed and grades have been received. A grade of C or better is required in each course to award the certificate. This certificate is intended for students who already possess a 2- or 4-year degree. All prerequisites will be waived for students with a 2- or 4-year degree.

Courses

10-109-106 Programming & PR **3 credits**
Provides an investigation of planning, organizing, conducting and evaluating recreation experiences, support systems and public relations in private, public and commercial agencies. Prerequisite: 10-109-103.

10-109-115 Recreation Administration & Management 3 credits
Provides information necessary for entry- and mid-level management positions in the leisure services profession. The course is project oriented and will focus in the areas of budget preparation, personnel management, risk management, legal issues in leisure services, hazardous materials management, agency and program evaluation, agency scheduling, and communications. Students will develop an agency administration manual. Prerequisite: Completion of at least two semesters in the Recreation Management program.

10-109-135 Recreation Activities **3 credits**
Provides departmental activities involving sports, games, dance, outdoor recreation, travel, hobbies, volunteer activities, social recreation and special events. Projects will be planned, implemented and evaluated. Prerequisite: 10-109-106 or consent of instructor.

Curriculum

		Credits	Hrs/week Lec-Lab
First Semester			
10-109-106	Programming & PR	3	3-0
10-109-115	Recreation Administration & Management	3	3-0
10-109-169	Travel Planning	2	2-0
	Semester Total	**8**	
Second Semester			
10-109-135	Recreation Activities	3	3-0
10-109-161	Recreation for Seniors	3	3-0
10-109-173	Group Exercise Leadership & Certification*	3	2-2
	Semester Total	**9**	

Career Potential:

- **Senior Center Director**
- **Senior Center Assistant Director**
- **Residential Community Activity Director**
- **Residential Community Activity Director Assistant**
- **Health Club Senior Activity Director**

With additional education and/or work experience, graduates may find employment as:

- **Residential Community Manager**
- **Health Club Fitness Director**
- **Health Club Manager**
- **Travel Director**

10-109-161 Recreation for Seniors **3 credits**
Prepares students for a career in Senior Recreation. Several types of senior recreation facilities will be examined. Tour of actual facilities is included.

10-109-169 Travel Planning **2 credits**
Prepares students to plan, conduct, and evaluate group travel experiences. Students will have the opportunity to create their own group trip. All aspects of the travel industry will be covered including airlines, cruise ships, trains and motor coaches.

10-109-173 Group Exercise Leadership & Certification **3 credits**
This course prepares individuals to teach group exercise and recreation for different age groups and take the American Council on Exercise National Exam. It is a comprehensive training program that covers topics such as exercise physiology, anatomy, body mechanics, and safety, choreography development, teaching methodologies, and group dynamics. Students have the option to earn MATC Instructor Certification. Recommend taking 10-807-160 or equivalent.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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MADISON AREA TECHNICAL COLLEGE

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Individualized Technical Studies Degree

Program Number: 10-825-1

Associate Degree

Program offered at Madison Campuses

For information call: (608) 258-2440 or (800) 322-6282 Ext. 2440

About the Program

This associate degree program permits a qualified individual to plan a unique program of study to meet his/her own career goals. An occupational advisor from business/industry and a Madison College advisor provide direction to identify the knowledge and skills required for success in achieving those goals. Existing Madison College courses become components of the program. Courses include general education, mathematics and science, electives and specific technical core courses that may be selected from two or more traditional program areas.

The standard 60-70 planned credit hours of study are required to earn the Associate of Applied Science Degree in Technical Studies. Admission to the program must be approved prior to the completion of the first 32 credit hours.

Program Intent/Rationale

This program is intended for currently employed individuals who have specific career objectives which cannot be met by Madison College's existing degree programs. Since many adult students already have occupational skills and work experience, they are looking for additional specific skills to operate their own business or prepare for career advancement. They value a portable credential that attests to their level of achievement. No single existing program may meet their unique needs.

With the growth of employment opportunities in small to mid-sized companies, employers are increasingly seeking workers able to perform multiple tasks that can cut across traditional occupational designations. New kinds of technologies and work processes require employees to have flexible sets of skills drawn from a variety of traditional disciplines and programs. Employers may be interested in designing and sponsoring a customized program (unique combination of existing courses) to meet their company's specific needs.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

I. General Education Core (select one from each content group).....21-30 credits

Associate Degree		College Transfer
Communications.....6 credits		
1. 10-801-195 Written Communication	or	20-801-201 English Composition 1
2. 10-801-196 Oral/Interpersonal Communication	or	20-801-202 English Composition 2
10-801-197 Technical Reporting (Prerequisite: Written Communication)		
10-801-198 Speech	or	20-810-201 Fundamentals of Speech
Social Science.....3 credits		
3. 10-809-195 Economics	or	20-809-211 Macroeconomics 20-809-212 Microeconomics
4. 10-809-197 Contemporary American Society	or	20-809-203 Introduction to Sociology
Behavior Science.....3 credits		
5. 10-809-199 Psychology of Human Relations	or	20-809-231 Introduction to Psychology 20-809-233 Developmental Psychology
Math/Science.....3 credits*		
6. *Associate degree or college transfer approved courses		
Additional General Studies Courses.....6-15 credits		

II. Individualized Technical Studies Courses.....36-49 credits
Students are required to complete a minimum of 36 credit hours relevant to career goals. A minimum of 20 of these credits must be focused in one discipline.

III. Electives.....0-6 credits
Students may complete up to six credit hours of electives relevant to career goals. You may utilize your electives to take additional technical courses.

IV. Total Program Credits.....60-70 credits

V. Advanced Standing Request
A minimum of 50% of the total program credits required must be earned at Madison College.

Note: Students are placed in English and mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Program Objectives

The objectives of the Individualized Technical Studies Program are to provide flexibility to meet the educational needs of individuals with unique career goals and specific occupational outcomes, to serve the individual whose career goals cannot be achieved through enrollment in any single program currently available at Madison College, and to provide employers with a flexible program of study to meet the educational needs of their employees.

Program Requirements

Required coursework includes: general studies, 21-30 credits; technical studies, 36-49 credits; and electives, 0-6 credits, for a total of 60-70 credits.

Technical Studies Core

A minimum of 36 credits of occupational-specific courses is required with a minimum of 20 of those credit hours focused in one instructional area. Courses must be selected to achieve the specific career outcomes identified by the student. There must be sufficient concentration of coursework in one or two areas to ensure technical competence and employability.

Student Admissions Process

This program involves a unique admissions process as well. An occupational advisor from business/industry must be involved and also be willing to serve as a program advisory committee member. With the help of an occupational and Madison College advisor, the student must develop a portfolio that identifies the individual's career goals and desired program outcomes. These outcomes serve as the basis for the development of the individualized program plan. The proposed program of study is then reviewed and must be approved by an ad hoc Individualized Technical Studies Degree Committee. These committees will be composed of deans and faculty from related areas as well as the assigned academic advisor for this program.

Clarification of Purpose

The Individualized Technical Studies Program is NOT intended to become a catch-all for students with little or no career focus, nor to prepare students for occupations that have little or no job market demand. It is also NOT simply an accumulation of credit hours which leads to a degree. It is a pre-planned program of study. Finally, this degree program option is NOT designed to give students the opportunity to make minor course changes to current existing programs.

Examples of Individualized Programs

It might be helpful to consider just a few of the possible examples of new individualized programs of study that a student or employer might request. A degree in "Police Management" may be needed in support of occupations in the law enforcement field—a program which could be designed with current courses from our police science and supervisory management programs. Perhaps area advertising agencies need to fill positions that call for skills and abilities in marketing and desktop publishing. For this purpose, a degree program in "Marketing Design and Production" may be in demand by a few individuals or agencies—a demand Madison College could fill by repackaging current program courses.

Rev. 03/10

Cabinetmaking and Millwork

Program Number: 31-409-2

One-Year Technical Diploma

Construction Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Courses offered at Madison Campuses

For information call: (608) 246-6102 or (800) 322-6282 Ext. 6102

About the Program

The Cabinetmaking and Millwork program provides the student with the knowledge and skills necessary to plan and complete cabinetry, furniture and millwork projects. Students learn to work with prints, specifications and shop drawings. Emphasis is placed on selecting proper materials, determining the best procedures, manufacturing parts to specification and assembling and finishing individual projects.

In our well-equipped lab, students learn the fundamentals of working with wood, from planning a project to adding the finishing details. From traditional woodworking equipment and hand tools to the latest computer numerically controlled (CNC) machinery and software, students learn to plan and process wood in the most efficient manner.

Through partnerships with area businesses and local and state agencies, students gain practical experience on a variety of larger scale projects. Students work in teams to plan, estimate and execute these projects. Profits are used to fund scholarship opportunities for students in the program.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

			Hrs/week
First Semester		**Credits**	**Lec-Lab**
31-409-330	Woodworking 1: Machinery & Methods	5	4-16
31-409-331	Woodworking 2: Materials & Processes	5	4-16
31-409-340	Tool & Machine Maintenance	1	1-3
31-409-341	Wood Finishing 1	1	1-3
31-409-385	Drawing	2	1-3
31-801-356	Communications 1	1	2-0
31-804-379	Vocational Mathematics 1	1	2-0
	Semester Total	**16**	

Second Semester			
31-409-332	Cabinetmaking, Millwork & Furniture 1	5	4-16
31-409-333	Cabinetmaking, Millwork & Furniture 2	5	4-16
31-409-337	Workplace Safety*	1	4-0
31-409-342	Countertops & Surfaces	2	1-3
31-409-345	Wood Finishing 2*	1	0-4
31-409-386	AutoCAD for Cabinet Drawing	2	2-2
	Semester Total	**16**	

*Meets for 9 weeks.

Notes:

- Safety procedures are required in all labs.
- Prerequisites can be waived with center approval.
- Advanced standing may be gained through the center dean.
- Certain associate degree or higher post secondary courses specific to the curriculum may substitute for courses upon approval of the dean.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Program Courses

31-409-330 Woodworking 1: Machinery & Methods 5 credits
Introduces the learner to the operation of traditional woodworking equipment. Students perform numerous exercises to gain familiarity with portable power tools and industrial woodworking machinery while building their skills and familiarity with wood. Units include layout, sawing, surfacing, boring, sanding and assembly.

31-409-331 Woodworking 2: Materials and Processes 5 credits
Building on skills acquired in Woodworking 1, students incorporate an understanding of wood as a material to properly execute joinery and cabinetry projects. Instruction includes units in shaping, adhesives, joinery and face-frame cabinetry. Prerequisite: Woodworking 1: Machinery & Methods, 31-409-330.

31-409-332 Cabinetmaking, Millwork & Furniture 1 5 credits
Planning and execution of cabinet, millwork and furniture projects are explored in this class. Standards for kitchen cabinetry and design are applied as students work together in teams on a group project. Additional areas of study include: jigs & fixtures, 32mm cabinetmaking and leg & rail furniture. Prerequisite: Woodworking 1, 31-409-330 and Woodworking 2, 31-409-331 or instructor consent.

31-409-333 Cabinetmaking, Millwork & Furniture 2 5 credits
Preparation for employment is emphasized in the final quarter of this program as students propose and execute projects of their choice. Students have the opportunity to experience a real work environment while completing an internship with an area employer. Areas of exploration include veneering, CNC technology and curved and circular work. Prerequisite: Cabinetmaking, Millwork & Furniture 1, 31-409-332.

31-409-337 Workplace Safety 1 credit
A safe working environment is not only essential, it is the law. This course covers several key areas of OSHA workplace safety, including: proper procedures for locking out and tagging equipment to be serviced, HASCOM (Hazardous Materials Communication), PPE (Personal Protective Equipment) and proper machine guarding.

31-409-340 Tool & Machine Maintenance 1 credit
Proper maintenance is essential in order to obtain accurate and repeatable results. This course focuses on keeping machinery in proper working order and maintaining sharp cutting tools. Students learn to troubleshoot problems and to establish routine maintenance procedures. Corequisite: Wood Finishing 1, 31-409-341.

31-409-341 Wood Finishing 1 1 credit
Finishing is both an art and a science. This course demystifies the process of finishing wood and explores the materials used. Hand applied, brushed and sprayed finishes will be covered. Proper finish selection and safe use of finishes is emphasized. Corequisite: Tool & Machine Maintenance, 31-409-340.

31-409-342 Countertops and Surfaces 2 credits
Introduces the student to the field of countertop fabrication. Plastic laminates are emphasized. Students learn about selecting proper grades and textures of plastic laminate, types of adhesives, and methods of application to secure laminate. Students also have the opportunity to experience Solid Surface (Corian) application techniques while producing their own countertop sample.

31-409-345 Wood Finishing 2 1 credit
Building upon principles covered in Wood Finishing 1, this course will further explore the application of finishes, including wash coats, glazes and other multi-step finishes. In addition, his course will expose the learner to methods for color matching and repairing damaged finishes.
Prerequisite: Wood Finishing 1, 31-409-341.

31-409-385 Drawing 2 credits
Drawing is essential for quickly and accurately communicating three-dimensional ideas. This class will introduce the learner to drawing and estimating as they relate to woodworking occupations. Areas of instruction include sketching techniques, orthographic and isometric projection, drafting, estimating materials and costs, and an introduction into computer-aided drafting (CAD).

31-409-386 AutoCAD for Cabinet Drawing 2 credits
Expanding on concepts introduced in the first semester Drawing course, this class builds competence in using CAD as a tool to communicate. Kitchen planning and cabinet design are emphasized. Students learn to develop working drawings and details for cabinet, millwork and furniture projects. Prerequisite: Drawing and Estimating, 31-409-385.

Career Potential:

- **Cabinetmaker**
- **Finish Carpenter**
- **Architectural Woodworker**
- **Finishing Specialist**
- **Fixtures Manufacturer**
- **CAD/CAM Operator**

With additional education and/or work experience, graduates may find employment as:

- **Master Carpenter**
- **Shop Supervisor**
- **Journey-Level Finish Carpenter**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/10

Construction and Remodeling

Program Number: 31-410-6

One-Year Technical Diploma

Construction Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 246-6102 or (800) 322-6282 Ext. 6102

About the Program

The Construction and Remodeling Program prepares students for a career in residential construction and/or remodeling. Through intensively hands-on coursework students learn how to take a project from prints and specifications through final finish work. They will learn about site preparation, layout and foundations. In a semester long hands-on course students frame floors, walls, ceilings and roofs. In another course devoted to learning by doing students install roof shingles, windows, doors, stairs, exterior trim, siding, cabinets and interior trim. All phases of home construction are covered, including estimating materials, understanding building codes and maintaining tools and equipment.

Unique Requirements for Graduation

32 credits with a GPA of 2.0 (C) or above. Average of 2.0 (C) or above for occupational specific courses.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

First Semester		Credits	Hrs/week Lec-Lab
31-410-301	Introduction to Construction	5	2-8
31-410-302	Plans, Site- and Formwork	2	2-2
31-410-337	Workplace Safety*…	1	4-0
31-410-399	Fundamentals of Construction	3	1-5
31-410-328	Construction & Remodeling Techniques 1	5	2-8
31-804-379	Vocational Math 1	1	2-0
	Semester Total	**17**	

Second Semester			
31-410-308	Codes and Regulations	2	2-2
31-410-329	Construction & Remodeling Techniques 2	5	2-8
31-410-345	Construction Materials and Estimating	2	2-2
31-410-336	Machine Maintenance*	1	0-4
31-410-385	Construction Drawing	2	2-2
31-410-363	Construction Science	2	1-3
31-801-356	Communications 1*	1	2-0
	Semester Total	**15**	

*Meets for 9 weeks.

Notes:

- Safety procedures required in all labs.
- Prerequisites can be waived with center approval.
- Advanced standing may be gained through center dean.
- Certain associate degree or higher post secondary courses specific to the curriculum may substitute for courses upon approval of center dean.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Program Courses

31-403-308 Codes and Regulations 2 credits
Units of instruction include zoning requirements, residential and commercial building codes, sanitary regulations, permit applications, building permits and inspection procedures. Contract documents and office practice are also discussed.

31-410-301 Introduction to Construction 5 credits
This course provides instruction in the fundamentals of floor, wall, ceiling and roof framing. A variety of building methods are discussed in the context of current understanding of how buildings work and why they fail. Corequisites: 31-410-337 and 31-410-399.

31-410-302 Plans, Site- and Formwork 2 credits
This course provides instruction in interpretation of plans, specifications and building codes, site preparation, the layout of footings and foundations and setting concrete forms. Corequisites: 31-410-301 or consent of instructor.

31-410-328 Construction and Remodeling Techniques 1 5 credits
This course continues instruction on roof framing and introduces installation methods for roof shingles, windows and doors, soffits and fascia, exterior trim and siding. Basic stair construction is also included. Building science topics of insulation, drainage planes and greener building techniques are also discussed. Prerequisites: 31-410-301 or consent of instructor.

31-410-329 Construction and Remodeling Techniques 2 5 credits
This course emphasizes interior finish including, but not necessarily limited to, installing wall board, hanging interior doors, installing interior trim, installing kitchen and bathroom cabinets, and completing a punch list. Prerequisites: 31-410-301 and 31-410-328 or consent of instructor.

31-410-336 Machine Maintenance 1 credit
The fundamentals of tool maintenance and care are emphasized. This includes the identification of maintenance problems and the care of woodworking tools and machines. The study of the principles on which machines operate and preventative maintenance is included. Lab work involves the maintenance of tools and machinery used in the construction classes.

31-410-337 Workplace Safety 1 credit
This course will cover several key areas of OSHA workplace safety, including: erection of ladders and scaffolds, HASCOM (Hazardous Materials Communication), selection and use of PPE (Personal Protective Equipment), proper machined guarding, and prevention of slips, trips and falls.

31-410-345 Construction Materials and Estimating 2 credits
The costs and applications of various building materials used in residential construction is explored. Instruction includes plan reading for the purpose of preparing material takeoffs and calculating costs. Estimating using computer software is introduced. Prerequisite: 31-410-301 or consent of instructor.

31-410-363 Construction Science 2 credits
Units of instruction include the mechanical properties of building materials, the building envelope, the house as a system, water and moisture management and green building materials and methods. Prerequisite: 31-410-301 or consent of instructor.

31-410-385 Construction Drawing 2 credits
This course introduces drawing and estimating as they relate to construction occupations. Areas of drawing instruction include sketching techniques, orthographic projection and isometric, oblique and perspective drawings. Methods of estimating materials and construction costs, reading prints and interpreting drawings are included.

31-410-399 Fundamentals of Construction 3 credits
This course provides an introduction to the identification, safe use and care of hand and portable power tools. Lab work includes the construction of sawhorses using techniques learned in class. Corequisites: 31-410-301 and 31-410-337 or consent of instructor.

Career Potential:

- **Rough/Finish Carpenter**
- **Remodeler**
- **Product Sales Representative**
- **Estimator**

With additional education and/or work experience, graduates may find employment as:

- **Master Carpenter**
- **Supervisor**
- **Head Estimator**
- **Teacher**
- **Inspector**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Technical Studies–Journeyworker

Program Number: 10-499-5

Associate Degree

Construction Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 246-6102 or (800) 322-6282 Ext. 6102

About the Certificate

This program provides students who have completed a registered apprenticeship program an option to receive an associate degree designed around individual needs. Advanced standing procedures will be used to assess the degree requirements for journey-level workers who completed a registered apprenticeship program. Interested applicants should contact the apprenticeship office to coordinate assessment and academic planning. Although the associate degree option is available to many trades, it is suggested that the diploma issued for this program include the trade involved (i.e. Technical Studies–Industrial Electrician).

Program Requirements

Applicants must meet the following requirements:

1) Possess a journey-level certificate from a registered apprenticeship program. This program must have included a minimum of 400 hours of related instruction. The certificate will meet the 32 credit occupational specific course requirement for the associate degree.

2) The 36-credit minimum technical studies requirement will be satisfied through presentation of a Wisconsin Apprenticeship Completion Certificate from a DWD-BAS registered program which includes a minimum of 400 hours of prescribed related instruction in the WTCS. Additional advanced standing will be granted for required apprentice related instruction beyond the 400 hour statutory minimum.

Meet the WTCS associate degree requirements of 21 credits of general education.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

Coursework required for degree		Credits
I.	Occupational Specific Courses	36 credits
II.	Electives	3 credits
III.	General Education	21 credits
	Total	**60 credits**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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MADISON AREA TECHNICAL COLLEGE

Real world smart.

CNC Specialist Certificate

Program Number: 90-420-1

Certificate

Manufacturing Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 246-6102 or (800) 322-6282 Ext. 6102

About the Certificate

Madison Area Technical College is now offering a Computer Numerical Control (CNC) Specialist certificate. This certificate is perfect for the student who already has manual machining skills, the ability to perform shop measurements and the ability to read prints. Four thousand (4,000) hours of industrial machining experience is required.

Courses

32-420-346 Computer Numerical Control 1 2 credits
Hands-on and lecture course exposing student to Computer Numerical Control (CNC). Emphasizes CNC vertical milling machines and CNC turning centers. Covers all basics of beginning programming including G-codes, M-codes, Manual and Conversational programming, and the Cartesian Coordinate System. Corequisite: 32-420-384 or consent of instructor.

32-420-347 Computer Numerical Control 2 1 credit
This advanced conversational programming course emphasizes CNC Turning centers, while continuing the study of G-codes, M-codes, manual and conversational programming, the Cartesian coordinate system, and the CNC vertical milling machines. Hands on and lecture course.

32-420-397 Computer Numerical Control 3 2 credits
Manual programming of numerical control machines. Covers history justification and types of control systems. Student will program and make a part on a computer numerical control milling and turning center. Includes introduction to two-dimensional CAD-CAM computer programming system. Prerequisites: 32-420-346 Corequisite: 32-420-384.

32-420-399 Computer Numerical Control 4 2 credits
Using a CAD-CAM computer programming system, student constructs parts from the simple to complex and then download the information to the CNC milling and EDM wire cut machines. Prerequisites: 32-420-397 and 32-420-384. Corequisite: 32-420-389

32-420-384 Computer Numerical Control Applications 1 2 credits
Hands-on instruction using the CNC vertical milling machine and CNC Turning Center. Emphasizes two-dimensional contouring, pocketing, drilling and basic turning and threading. Corequisites: 32-420-346 and 32-420-397 or consent of instructor.

32-420-389 Computer Numerical Control Applications 2 2 credits
Advanced CNC Vertical Milling and Machining Center, including three-dimensional parts and multiple machining operations. Introduces the CNC wire cut machine and machines both simple and complex parts. Prerequisites: all first 9-week courses. Corequisites: 32-420-370 and 32-420-399 or consent of instructor.

Curriculum

FIRST YEAR		Credits	Hrs/week Lec-Lab
First Semester			
32-420-346	Computer Numerical Control 1	2	4-0
	Total	**2**	
Second Semester			
32-420-347	Computer Numerical Control 2	1	2-0
32-420-384	Computer Numerical Control Applications 1	2	1-3
	Total	**3**	
SECOND YEAR			
First Semester			
32-420-397	Computer Numerical Control 3	2	3-1
	Total	**2**	
Second Semester			
32-420-399	Computer Numerical Control 4	2	3-1
32-420-389	Computer Numerical Control Applications 2	2	1-3
	Total	**4**	

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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HVAC Certificate

Program Number: 90-462-1

Certificate

Manufacturing Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 246-6102 or (800) 322-6282 Ext. 6102

About the Program

This program has extensive training in refrigeration/HVAC and leads to EPA certification.

The HVAC Certificate is a certificate program for individuals interested in maintaining or pursuing careers in refrigeration heating field. The certificate is designed for updating and/or broadening the knowledge of employees in the field of facilities HVAC and for individuals desiring to enter the field. Note: No application is required.

Curriculum

FIRST YEAR

			Hrs/week
First Semester		**Credits**	**Lec-Lab**
32-414-316	DC/AC Circuits for Maintenance	3	3-3
32-420-330	Metal Processes 1	2	3-1
32-421-392	Drawing Interpretation for Industrial Maintenance	2	2-2
32-462-301	Safety Compliance	1	2-0
32-462-318	Code Compliance	1	2-0
32-462-308	Heating and Air Conditioning 1	3	4-2
32-462-316	Industrial Fluid Distribution Systems	2	2-2
32-462-317	Building Service Maintenance	3	4-2
31-804-381	Machine Tool Mathematics 1	2	4-0
	Semester Total	**19**	

Second Semester			
32-462-340	Industrial Electricity and Controls	4	4-4
32-462-306	Industrial Fluid Power 1	1	1-1
32-462-309	Heating and Air Conditioning 2	3	4-2
32-462-315	Building Management Systems	3	4-2
32-462-341	Industrial Fluid Power 2	1	1-1
10-103-133	Excel	1	1-1
31-801-356	Communications 1	1	2-0
31-806-363	Science 1	2	2-2
31-809-352	Human Relations	2	3-0
	Semester Total	**18**	

Program Courses

32-414-316 DC/AC Circuits for Maintenance 3 credits
Introduces the practical DA/AC concepts including electrical quantities and components and measurement instruments for AC and DC circuits. Students analyze and construct circuits and measure voltage, current, resistance and power for both AC and DC sources. Covers fundamentals of NEC wiring, soldering and relay ladder logic. Corequisite: 31-804-381.

32-420-330 Metal Processes 1 2 credits
This basic metalworking course is designed to provide the student with instruction in metalworking processes. Instructional units include safety, layout and measuring, machining, oxy-acetylene welding, brazing and cutting, arc welding and properties of metals.

32-421-392 Drawing Interpretation – Industrial Maintenance 2 credits
Studies basic principles of interpreting engineering drawings and schematics. Through interpretation and sketching, students develop a visualization of the part, section or assembly. Uses drawings pertinent to the trade along with examples and discussions of manufacturing procedures.

32-462-301 Safety Compliance 1 credit
Course focuses on workplace safety as well as OSHA compliance.

32-462-318 Code Compliance 1 credit
Focuses on laws govering workplace safety and environmental concerns such as those covered by EPA, DILHR and the DNR. Reviews general model codes (NEC,NFPA,ANSI, etc) as well as shop safety

32-462-306 Industrial Fluid Power 1 1 credit
Fundamentals of fluid power (hydraulic and pneumatic) and its components as well as principles, functions and terminology. Covers the application of basic fluid power systems to various machines along with maintenance and troubleshooting.

32-462-308 Heating and Air Conditioning 1 3 credits
Covers basic environmental equipment maintenance. Presents applications of HVAC components, refrigeration controls, condensers, hydronics, boilers, heat exchangers, dampers, compressors, plumbing, pumps, measurement, blowers and preventive maintenance/repair. Also covers EPA CFC certification.

32-462-309 Heating and Air Conditioning 2 3 credits
Advanced environmental equipment installation and maintenance course which puts the theory learned in 32-462-308 into practice including boiler competencies. Prerequisite: 32-462-308 or instructor consent.

32-462-315 Building Management Systems 3 credits
Studies computer-based energy and building control systems in detail. Includes sensing devices, pneumatic and otherwise, as well as basic energy efficiency calculating. Also presents and discusses cost- and energy-saving ideas and plans. Prerequisite: 32-462-309 or instructor consent.

32-462-316 Industrial Fluid Distribution Systems 2 credits
Covers installation and repair of fluidic systems. Includes fittings, thread cutting, pipe sweating, roll groving, solder, plastic cementing, repair equipment and tools. Pumps, valves, water supply systems and fire protection distribution systems covered.

32-462-317 Building Service Maintenance 3 credits
Covers safety, schematics, wall framing, electrical services, insulation, drywall applications, painting, floor applications, roofing and siding applications. Includes the study of appropriate applications of material to facilities.

32-462-340 Industrial Electricity and Controls 4 credits
Studies basic principles of physics specific to electro-mechanical systems. Emphasizes measurement, lubrication, energy, power, machines and fluid and chemical properties, as well as installation, timing and synchronization of machine drive components. Includes hands-on disassembly and assembly of industrial components. Studies motors, transformers and various electro-mechanical devices to enhance AC power distribution and control topics. Introduces programmable logic controllers in the on/off mode. Prerequisite: 32-414-316 and second semester standing or instructor consent.

32-462-341 Industrial Fluid Power 2 1 credit
Fundamentals of fluid power (hydraulic and pneumatic) and its components as well as principles, functions and terminology. Covers the application of basic fluid power systems to various machines along with maintenance and troubleshooting.

32-462-342 Industrial Fluid Power 3 1 credit
Fundamentals of fluid power (hydraulic and pneumatic) and its components as well as principles, functions and terminology. Covers the application of basic fluid power systems to various machines along with maintenance and troubleshooting.

Career Potential:

- **Facility Maintenance**
- **Heating and Air Conditioning Technician**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Industrial Automation
Post Baccalaureate Certificate

Program Number: 90-462-3

Certificate

Manufacturing Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 246-6102 or (800) 322-6282 Ext. 6102

About the Program

The certificate curriculum includes five courses from the Industrial Maintenance Technician program. The curriculum may be completed in two semesters or longer.

Students completing this certificate will have practical skills and knowledge needed for employment in Automation and Process Control industries, including manufacturing automation and renewable energy infrastructure in public sectors.

This certificate is perfect for individuals who have a theoretical basis for, but lack the practical skills for automation and Process Control.

Unique Admissions Requirements

1. A bachelor's degree in Engineering and consent of faculty director;
2. One semester of college level AC/DC;
3. One semester of college level Controls (Motors/Transformer) with laboratory component;
4. Good Computer Skills (Excel, Networking).

Applicants with missing prerequisites may complete those courses at Madison College.

Career Potential:

- **Automation Engineer**
- **Maintenance Supervisor**
- **Systems Integrator**
- **Industrial Controls Technician**
- **Automation Support Engineer**
- **Controls Engineer**
- **SCADA Engineer**
- **Energy Infrastructure Engineering**
- **Bio Fuels Processing**
- **Plant Engineering**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

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Curriculum

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
32-414-318	Electronic Circuits for Maintenance	3	3-3
32-414-319	Programmable Logic Controllers	3	3-3
	Semester Total	**6**	
Second Semester			
32-414-320	Programmable Logic Controllers 2	3	3-3
32-414-321	Interfacing Sensors with Computer Controls	3	3-3
32-462-314	Manufacturing Systems, Application and Control	3	4-2
	Semester Total	**9**	

Program Courses

32-414-318 Electronic Circuits for Maintenance 3 credits
Presents semiconductor devices with an emphasis on their practical use. Students construct and troubleshoot power supplies, amplifiers, electronic switches, relay drivers, photo-optical isolators and power control electronics. Students learn to identify and troubleshoot diodes, bipolar transistors (BJTs), field-effect transistors (FETs), silicon controlled rectifiers (SCRs and Triacs), light-emitting diodes (LEDs) and other components found in industrial electronics. Prerequisites: 32-462-303, 31-804-382 and 31-806-363.

32-414-319 Programmable Logic Controllers 1 3 credits
Fundamentals of programmable logic controller (PLC) installation, interfacing, operation, and programming. Students learn about PLCs connected to Windows-based PCs running state-of-the-art programming tools. Students study discrete and analog input and output; hardware sensor interfacing and troubleshooting techniques; fundamentals of digital systems and will program PLCs using timer, counter, latch, data movement, sequencing, integer arithmetic and other instructions. Prerequisite: 32-414-316.

32-414-320 Programmable Logic Controllers 2 3 credits
Advanced programmable logic controller (PLC) installation, interfacing, operation, and programming. Students learn how to connect advanced PLCs in a typical industrial PLC network utilizing Ethernet, DH+, RS232 and RIO communication paths. Data sharing and distributed PLC programming techniques along with fundamentals of touch panel programming and operation are studied. Prerequisite: 32-414-319.

32-414-321 Interfacing Sensors with Computer Controls 3 credits
Applies various sensors to analog input modules of programmable controllers and to A/D converters for computer systems. Prerequisite: 32-414-318.

32-462-314 Manufacturing Systems, Application and Control 3 credits
Introduces computer control systems and fundamentals of motion control. Presents programmable logic controllers (PLCs) along with design, integration and troubleshooting techniques. Prerequisite: 32-414-319 or instructor consent.

MADISON AREA | TECHNICAL COLLEGE

Real world smart.

Industrial Maintenance Technician

Program Number: 32-462-1

Two-Year Technical Diploma

Manufacturing Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 246-6102 or (800) 322-6282 Ext. 6102

About the Program

The Industrial Maintenance Technician Program provides students with the knowledge and skills necessary to assemble, install, troubleshoot, repair and modify machinery and automated systems that are computer or electronically controlled in both manufacturing and facilities environments. This program also has extensive training in refrigeration/HVAC, EPA certification and programmable logic controllers. Career enhancement also is vital in today's manufacturing environment.

Program Courses

32-414-316 DC/AC Circuits for Maintenance 3 credits
Introduces the practical DA/AC concepts including electrical quantities and components and measurement instruments for AC and DC circuits. Students analyze and construct circuits and measure voltage, current, resistance and power for both AC and DC sources. Covers fundamentals of NEC wiring, soldering and relay ladder logic. Corequisite: 31-804-381.

32-414-318 Electronic Circuits for Maintenance 3 credits
Presents semiconductor devices with an emphasis on their practical use. Students construct and troubleshoot power supplies, amplifiers, electronic switches, relay drivers, photo-optical isolators and power control electronics. Students learn to identify and troubleshoot diodes, bipolar transistors (BJTs), field-effect transistors (FETs), silicon controlled rectifiers (SCRs and Triacs), light-emitting diodes (LEDs) and other components found in industrial electronics. Prerequisites: 32-462-303, 31-804-382 and 31-806-363.

32-414-319 Programmable Logic Controllers 1 3 credits
Fundamentals of programmable logic controller (PLC) installation, interfacing, operation, and programming. Students learn about PLCs connected to Windows-based PCs running state-of-the-art programming tools. Students study discrete and analog input and output; hardware sensor interfacing and troubleshooting techniques; fundamentals of digital systems and will program PLCs using timer, counter, latch, data movement, sequencing, integer arithmetic and other instructions. Prerequisite: 32-414-316.

32-414-320 Programmable Logic Controllers 2 3 credits
Advanced programmable logic controller (PLC) installation, interfacing, operation, and programming. Students learn how to connect advanced PLCs in a typical industrial PLC network utilizing Ethernet, DH+, RS232 and RIO communication paths. Data sharing and distributed PLC programming techniques along with fundamentals of touch panel programming and operation are studied. Prerequisite: 32-414-319.

32-414-321 Interfacing Sensors with Computer Controls 3 credits
Applies various sensors to analog input modules of programmable controllers and to A/D converters for computer systems. Prerequisite: 32-414-318.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
32-414-316	DC/AC Circuits for Maintenance	3	3-3
32-420-330	Metal Processes 1	2	3-1
32-421-392	Drawing Interpretation for Industrial Maintenance	2	2-2
10-103-133	Excel - Beginning	1	1-1
32-462-316	Industrial Fluid Distribution Systems	2	2-22
32-462-301	Safety Compliance	1	4-0
32-462-318	Code Compliance	1	2-0
31-804-381	Machine Tool Mathematics 1	2	4-0
	Semester Total	14	
Second Semester			
32-462-335	Metal Processes for Maintenance	2	1-3
32-462-303	Industrial Equipment Mechanisms	1	1-1
32-462-340	Industrial Electricity and Controls	4	4-4
32-462-306	Industrial Fluid Power 1	1	1-1
32-462-341	Industrial Fluid Power 2	1	1-1
32-462-342	Industrial Fluid Power 3	1	1-1
31-801-356	Communications 1	1	2-0
31-804-382	Machine Tool Mathematics 2	1	2-0
31-806-363	Science 1	2	2-2
31-809-352	Human Relations	2	3-0
	Semester Total	16	
SECOND YEAR			
First Semester			
32-414-318	Electronic Circuits for Maintenance	3	3-3
32-414-319	Programmable Logic Controllers	3	3-3
32-462-308	Heating and Air Conditioning 1	3	4-2
32-462-311	Industrial Maintenance Mechanic 1	3	1-5
32-462-313	Maintenance Management	2	4-0
32-462-317	Building Service Maintenance	3	4-2
	Semester Total	17	
Second Semester			
32-414-320	Programmable Logic Controllers 2	3	3-3
32-414-321	Interfacing Sensors with Computer Controls	3	3-3
32-462-309	Heating and Air Conditioning 2	3	4-2
32-462-314	Manufacturing Systems, Application and Control	3	4-2
32-462-315	Building Management Systems **OR**	3	4-2
10-620-168	Introduction to Robotics **AND**	(1)	1-1
10-620-170	Robot Programming	(2)	2-2
32-462-322	Industrial Maintenance Mechanic 2*	3	1-5
31-801-357	Communications 2	1	2-0
	Semester Total	19	

*Internship Course.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Program Courses

Program Courses (continued)

32-420-330 Metal Processes 1 2 credits
This basic metalworking course is designed to provide the student with instruction in metalworking processes. Instructional units include safety, layout and measuring, machining, oxy-acetylene welding, brazing and cutting, arc welding and properties of metals.

32-421-392 Drawing Interpretation – Industrial Maintenance 2 credits
Studies basic principles of interpreting engineering drawings and schematics. Through interpretation and sketching, students develop a visualization of the part, section or assembly. Uses drawings pertinent to the trade along with examples and discussions of manufacturing procedures.

32-462-303 Industrial Equipment Mechanisms 1 credit
Studies basic principles of physics specific to electro-mechanical systems. Emphasizes measurement, lubrication, energy, power, machines and fluid and chemical properties, as well as installation, timing and synchronization of machine drive components. Includes hands-on disassembly and assembly of industrial components. Prerequisites: 32-414-316 and second semester standing or instructor consent.

32-462-306 Industrial Fluid Power 1 1 credit
Fundamentals of fluid power (hydraulic and pneumatic) and its components as well as principles, functions and terminology. Covers the application of basic fluid power systems to various machines along with maintenance and troubleshooting.

32-462-308 Heating and Air Conditioning 1 3 credits
Covers basic environmental equipment maintenance. Presents applications of HVAC components, refrigeration controls, condensers, hydronics, boilers, heat exchangers, dampers, compressors, plumbing, pumps, measurement, blowers and preventive maintenance/repair. Also covers EPA CFC certification.

32-462-309 Heating and Air Conditioning 2 3 credits
Advanced environmental equipment installation and maintenance course which puts the theory learned in 32-462-308 into practice including boiler competencies. Prerequisite: 32-462-308 or instructor consent.

32-462-311 Industrial Maintenance Mechanic 1 3 credits
Emphasizes basic tools used for maintenance. Presents information on lock out/tag out, confined space and safe rigging practices, manufacturing machine types and operations, torque, metal properties and hardness, gaskets, pumps, gears, motors, pulleys and alignment.

32-462-313 Maintenance Management 2 credits
Emphasizes maintenance management and quality control techniques to give maintenance students an understanding of their roles in an organization. Covers maintenance record keeping, parts ordering and shop operation.

32-462-314 Manufacturing Systems, Application and Control 3 credits
Introduces computer control systems and fundamentals of motion control. Presents programmable logic controllers (PLCs) along with design, integration and troubleshooting techniques. Prerequisite: 32-414-319 or instructor consent.

32-462-306 Industrial Fluid Power 1 1 credit
Fundamentals of fluid power (hydraulic and pneumatic)

32-462-315 Building Management Systems 3 credits
Studies computer-based energy and building control systems in detail. Includes sensing devices, pneumatic and otherwise, as well as basic energy efficiency calculating. Also presents and discusses cost- and energy-saving ideas and plans. Prerequisite: 32-462-309 or instructor consent.

32-462-316 Industrial Fluid Distribution Systems 2 credits
Covers installation and repair of fluidic systems. Includes fittings, thread cutting, pipe sweating, roll grooving, solder, plastic cementing, repair equipment and tools. Pumps, valves, water supply systems and fire protection distribution systems covered.

32-462-317 Building Service Maintenance 3 credits
Covers safety, schematics, wall framing, electrical services, insulation, drywall applications, painting, floor applications, roofing and siding applications. Includes the study of appropriate applications of material to facilities.

32-462-301 Safety Compliance 1 credit
Course focuses on workplace safety as well as OSHA compliance.

32-462-318 Code Compliance 1 credit
Focuses on laws governing workplace safety and environmental concerns such as those covered by EPA, DILHR and the DNR. Reviews general model codes (NEC,NFPA,ANSI, etc) as well as shop safety.

32-462-322 Industrial Maintenance Mechanic 2 3 credits
Emphasizes on-the-job installing, troubleshooting and maintaining manufacturing systems with special focus on automated systems. This course is completed as an internship. Prerequisite: 32-462-311 or consent of instructor.

32-462-335 Metal Processes for Maintenance 2 credits
Includes machine shop operations, sheet metal work, soldering and brazing, forging and heat treatment, grinding, tool sharpening, metal casting and other metal applications as related to industrial machinery repair. Prerequisite: 32-420-330 or instructor consent.

32-462-340 Industrial Electricity and Controls 4 credits
Studies motors, transformers and various electro-mechanical devices to enhance AC power distribution and control topics. Introduces programmable logic controllers in the on/off mode. Prerequisites: 32-414-316 and second semester standing or instructor consent.

32-462-341 Industrial Fluid Power 2 1 credit
Fundamentals of fluid power (hydraulic and pneumatic) and its components as well as principles, functions and terminology. Covers the application of basic fluid power systems to various machines along with maintenance and troubleshooting. Prerequisite: 32-462-306

32-462-342 Industrial Fluid Power 3 1 credit
Fundamentals of fluid power (hydraulic and pneumatic) and its components as well as principles, functions and terminology. Covers the application of basic fluid power systems to various machines along with maintenance and troubleshooting. Prerequisite: 32-462-3341

10-620-168 Introduction to Robotics 1credit
Introductory study of the application, operation, programming and troubleshooting of Industrial Robots

10-620-170 Robot Programming 2 credits
Jog in Joint and Cartesian movement; establish robot axis soft limits; identify axis movements; navigate the teach pendant to set up the robot for desired movement; demonstrate working knowledge of arm speed and inching control; define the Frames of reference used by the coordinate system; create multiple Tool Frames; create a program file; write a functional motion instruction; edit an existing program; demonstrate the use of a wait statement; demonstrate the use of a Call statement; demonstrate the use of an Output statement; and upload and download program memory files. Prerequisites: 32-414-319 and 10-620-168

Related Courses Available to the Public
- EPA Refrigerant Recovery Certificate
- Refrigeration courses
- Heating, venting and air conditioning courses

For information, call (608) 246-6821.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Industrial Maintenance Technician

Program Number: 90-462-2

Certificate

Manufacturing Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 246-6102 or (800) 322-6282 Ext. 6102

About the Program

The one year Industrial Maintenance Technician Program provides students with the basic knowledge and skills to assemble, install, troubleshoot, repair and modify machinery and automated systems in manufacturing environment.

Curriculum

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
32-414-316	DC/AC Circuits for Maintenance	3	3-3
32-420-330	Metal Processes 1*	2	3-1
32-421-392	Drawing Interpretation for Industrial Maintenance	2	2-2
10-103-133	Excel - Beginning	1	1-1
32-462-301	Safety Compliance	1	2-0
32-462-316	Industrial Fluid Distribution Systems	2	2-2
32-462-318	Code Compliance	1	4-0
31-804-381	Machine Tool Mathematics 1	2	4-0
	Semester Total	**13**	

Second Semester			
32-462-335	Metal Processes for Maintenance*	2	1-3
32-462-303	Industrial Equipment Mechanisms	1	1-1
32-462-340	Industrial Electricity and Controls	4	4-4
32-462-306	Industrial Fluid Power 1	1	1-1
32-462-341	Industrial Fluid Power 2	1	1-1
32-462-342	Industrial Fluid Power 3	1	1-1
31-801-356	Communications 1	1	2-0
31-804-382	Machine Tool Mathematics 2	1	2-0
31-806-363	Science 1	2	2-2
31-809-352	Human Relations	2	3-0
	Semester Total	**16**	

***The following can be substituted for Metal Processes**

32-414-319	Programmable Logic Controllers	3	3-3
32-462-313	Maintenance Management	2	4-0

Program Courses

32-414-316 DC/AC Circuits for Maintenance 3 credits
Introduces the practical DA/AC concepts including electrical quantities and components and measurement instruments for AC and DC circuits. Students analyze and construct circuits and measure voltage, current, resistance and power for both AC and DC sources. Covers fundamentals of NEC wiring, soldering and relay ladder logic. Corequisite: 31-804-381.

32-414-319 Programmable Logic Controllers 1 3 credits
Fundamentals of programmable logic controller (PLC) installation, interfacing, operation, and programming. Students learn about PLCs connected to Windows-based PCs running state-of-the-art programming tools. Students study discrete and analog input and output; hardware sensor interfacing and troubleshooting techniques; fundamentals of digital systems and will program PLCs using timer, counter, latch, data movement, sequencing, integer arithmetic and other instructions. Prerequisite: 32-414-316.

32-420-330 Metal Processes 1 2 credits
This basic metalworking course is designed to provide the student with instruction in metalworking processes. Instructional units include safety, layout and measuring, machining, oxy-acetylene welding, brazing and cutting, arc welding and properties of metals.

32-421-392 Drawing Interpretation – Industrial Maintenance 2 credits
Studies basic principles of interpreting engineering drawings and schematics. Through interpretation and sketching, students develop a visualization of the part, section or assembly. Uses drawings pertinent to the trade along with examples and discussions of manufacturing procedures.

32-462-301 Safety Compliance 1 credit
Course focuses on workplace safety as well as OSHA compliance.

32-462-318 Code Compliance 1 credit
Focuses on laws governing workplace safety and environmental concerns such as those covered by EPA, DILHR and the DNR. Reviews general model codes (NEC,NFPA,ANSI, etc) as well as shop safety.

32-462-303 Industrial Equipment Mechanisms 1 credit
Studies basic principles of physics specific to electro-mechanical systems. Emphasizes measurement, lubrication, energy, power, machines and fluid and chemical properties, as well as installation, timing and synchronization of machine drive components. Includes hands-on disassembly and assembly of industrial components. Studies motors, transformers and various electro-mechanical devices to enhance AC power distribution and control topics. Introduces programmable logic controllers in the on/off mode. Prerequisite: 32-414-316 and second semester standing or instructor consent.

32-462-306 Industrial Fluid Power 1 1 credit
Fundamentals of fluid power (hydraulic and pneumatic) and its components as well as principles, functions and terminology. Covers the application of basic fluid power systems to various machines along with maintenance and troubleshooting.

32-462-313 Maintenance Management 2 credits
Emphasizes maintenance management and quality control techniques to give maintenance students an understanding of their roles in an organization. Covers maintenance record keeping, parts ordering and shop operation.

32-462-335 Metal Processes for Maintenance 2 credits
Includes machine shop operations, sheet metal work, soldering and brazing, forging and heat treatment, grinding, tool sharpening, metal casting and other metal applications as related to industrial machinery repair. Prerequisite: 32-420-330 or instructor consent.

32-462-340 Industrial Electricity and Controls 4 credits
Studies basic principles of physics specific to electro-mechanical systems. Emphasizes measurement, lubrication, energy, power, machines and fluid and chemical properties, as well as installation, timing and synchronization of machine drive components. Includes hands-on disassembly and assembly of industrial components. Studies motors, transformers and various electro-mechanical devices to enhance AC power distribution and control topics. Introduces programmable logic controllers in the on/off mode. Prerequisite: 32-414-316 and second semester standing or instructor consent.

32-462-341 Industrial Fluid Power 2 1 credit
Fundamentals of fluid power (hydraulic and pneumatic) and its components as well as principles, functions and terminology. Covers the application of basic fluid power systems to various machines along with maintenance and troubleshooting.

32-462-342 Industrial Fluid Power 3 1 credit
Fundamentals of fluid power (hydraulic and pneumatic) and its components as well as principles, functions and terminology. Covers the application of basic fluid power systems to various machines along with maintenance and troubleshooting.

Related Courses Available to the Public
- EPA Refrigerant Recovery Certificate
- Refrigeration courses
- Heating, venting and air conditioning courses

For information, call (608) 246-6821.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Machine Tool Operations

Program Number: 90-420-2

Certificate

Manufacturing Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 246-6102 or (800) 322-6282 Ext. 6102

About the Program

The Machine Tool Operations program trains students for employment in the machining and metalworking industries.

Students learn to operate machine tools such as milling machines, manual lathes, and drill presses. Studies will also include an introduction on using CAD-CAM to operate and program CNC machines.

After students have completed this program, an additional year of training is available through the Machine Tooling Technics program.

This is for students interested in:
1.) Advancing their CAD-CAM / CNC skills; and
2.) Developing skills to design, build and inspect a machine part, injection mold, or stamping die.

Curriculum

FIRST YEAR

	First Semester	**Credits**	**Hrs/week Lec-Lab**
32-420-345	Drawing Interpretation 1	2	4-0
32-420-346	Computer Numerical Control 1	2	4-0
32-420-351	Elements of Basic Metrology	2	4-0
32-420-322	Machine Tool 1*	4	4-12
32-420-323	Machine Tool 2*	4	4-12
31-801-356	Communications 1	1	2-0
31-804-381	Machine Tool Mathematics 1	2	4-0
	Semester Total	**17**	

Second Semester

32-420-304	Intermediate Metrology Applications	1	2-0
32-420-324	Machine Tool 3*	4	4-12
32-420-325	Machine Tool 4*	4	4-12
32-420-384	Computer Numerical Control Applications 1	2	1-3
32-420-388	Tool and Fixture Design	1	2-0
32-420-390	Fundamentals of Metallurgy	2	4-0
32-420-347	CNC 2	1	2-0
32-420-397	CNC 3	2	3-1
31-804-382	Machine Tool Mathematics 2	1	2-0
	Semester Total	**18**	

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Program Courses

32-420-304 Intermediate Metrology Applications 1 credit
Course studies precision inspection methods while utilizing optical and electronic precision measuring instruments such as the profilometer, optical comparitor, microscope, laser alignment machines, the Coordinate Measuring Machine and state-of-the-art computerized vision system. Prerequisite: 32-420-351.

32-420-322 Machine Tool 1 4 credits
Introduces the basic concepts and skills using engine lathes, power saws, Drill presses and bench applications. Emphasizes safety and proper operation of tools and machines, speeds, feeds, cutting tools, tool geometry, tool grinding and work-holding devices. Stresses dimensional accuracy, finish and quality as well as team-building and work ethics. Corequisites: 32-420-346, 32-420-345, 32-420-351, 32-420-345 and 31-804-381.

32-420-323 Machine Tool 2 4 credits
Expands on basic concepts and skills using engine lathes, power saws, drill presses, bench applications, CNC setup and operation. Emphasizes safety and proper operation of tools and machines, speeds feeds, cutting tools, tool geometry, tool grinding and work-holding devices. Stresses dimensional accuracy, finish and quality with team-building and work ethics. . Corequisites: 32-420-322, 32-420-346, 32-420-351, 32-420-345 and 31-804-381.

32-420-324 Machine Tool 3
Expands the concepts and skills using engine lathes, power saws, drill presses, bench applications, and advanced CNC setup and operation. Emphasizes safety and proper operation of tools and machines, speeds feeds, cutting tools, tool geometry, tool grinding and work-holding devices. Stresses dimensional accuracy, finish and quality with team-building and work ethics. Prerequisites: 32-420-323, 32-420-346, 32-420-32 and 32-420-345. Corequisite: 32-420-304, 32-420-390, 31-804-382 and 32-420-325.

32-420-325 Machine Tool 4 4 credits
Expands on basic concepts and skills using engine lathes, power saws, drill presses, bench applications, CNC setup and operation. Emphasizes safety and proper operation of tools and machines, speeds feeds, cutting tools, tool geometry, tool grinding and work-holding devices. Stresses dimensional accuracy, finish and quality with team-building and work ethics. Prerequisites: 32-420-323, 32-420-345, 32-420-346 and 32-420-351. Corequisites: 32-420-304, 31-804-382, 32-420-324 and 32-420-390.

32-420-345 Drawing Interpretation 1 2 credits
Basic principles of engineering drawings and manufacturing procedures. Through interpretation and sketching, students learn to visualize the part, section or assembly. Uses drawings pertinent to the trade with examples.

32-420-346 Computer Numerical Control 1 2 credits
Hands-on and lecture course exposing students to CNC (Computer Numerical Control). Emphasizes CNC vertical milling machines and CNC turning centers. Covers all basics of beginning programming including G-codes, M-codes, Manual and Conversational programming and the Cartesian Coordinate System. Corequisite: 32-420-380.

32-420-351 Elements of Basic Metrology 2 credits
This course introduces the principles of basic dimensional measurement, layout techniques for machines, use of direct and indirect measuring tools as well as the use of length standards relative to calibration of measuring instruments and the basic operation of the Coordinate Measuring Machine.

32-420-384 Computer Numerical Control Applications 1 2 credits
Hands-on instruction using the CNC vertical milling machine and CNC Turning Center. Emphasizes two-dimensional contouring, pocketing, drilling and basic turning and threading. Prerequisites: all first semester courses. Corequisites: 32-420-346 and 32-420-397 or consent of instructor.

32-420-388 Tool and Fixture Design 1 credit
Introduces tool design and gauging. Emphasizes jigs, fixture design, clamping, locating devices and tooling and production methods. Presents preset and qualified tooling for NC/CNC as they relate to conventional practice Prerequisites: 32-420-322 and 32-420-323. Corequisites: 32-420-324 and 32-420-325.

32-420-390 Fundamentals of Metallurgy 2 credits
Introduces metallurgy, emphasizing applications, selection, identification methods and alloy influences. Studies metal properties using testing, micro-structure interpretation and heat-treatment processes. Covers tool steels, weld heat effects, failure analysis and machinability variations in cast iron, alloy steels and non-ferrous materials in detail.

32-420-347 Computer Numerical Control 2 1 credit
This advanced conversational programming course emphasizes CNC Turning centers, while continuing the study of G-codes, M-codes, manual and conversational programming, the Cartesian coordinate system, and the CNC vertical milling machines. Hands on and lecture course.

32-420-397 Computer Numerical Control 3 2 credits
Manual programming of numerical control machines. Covers history justification and types of control systems. Student will program and make a part on a computer numerical control milling and turning center. Includes introduction to two-dimensional CAD-CAM computer programming system. Prerequisite: 32-420-346. Corequisite: 32-420-384.

Career Potential:

A graduate of this program will have the potential for employment in the following areas:

- CNC Machine Operator Machine Tool Operator
- Maintenance / Repair Machinist
- Machinist Apprentice

With additional education and / or work experience graduates may find other opportunities for employment.

- Advanced Careers in CAD/CAM and CNC
- CNC Programmer
- Precision Machinist
- Machine Builder
- Tool and Die maker
- Quality Control Inspector
- Machine Shop Supervisor
- Career laddering options too numerous to mention

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/01

Machine Tooling Technics

Program Number: 32-420-5

Two-Year Technical Diploma

Manufacturing Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 243-4169 or (800) 322-6282 Ext. 4169

About the Program

Emphasis in Machine Tool is on training graduates for employment in tool and die making, mold making, Computer Numerical Control (CNC) Programming or as quality control inspectors or precision and repair machinists. Students utilize CAD/CAM (Computer Aided Design/Computer Aided Manufacturing) and state-of-the-art machining centers, turning centers and Electrical Discharge Machines (EDM). This knowledge is blended with basic hands-on skills learned throughout the two-year program. Students gain the knowledge and skills necessary to design, build and inspect a machined part, injection mold or stamping die. This is the program for students seeking interesting and challenging work in a clean, high tech work environment, job stability and a career that rewards growth and experience.

Program Courses

32-420-304 Intermediate Metrology Applications 1 credit
Course studies precision inspection methods while utilizing optical and electronic precision measuring instruments such as the profilometer, optical comparator, microscope, laser alignment machines, the Coordinate Measuring Machine and state-of-the-art computerized vision system. Prerequisite: 32-420-351.

32-420-322 Machine Tool 1 4 credits
Introduces the basic concepts and skills using engine lathes, power saws, Drill presses and bench applications. Emphasizes safety and proper operation of tools and machines, speeds, feeds, cutting tools, tool geometry, tool grinding and work-holding devices. Stresses dimensional accuracy, finish and quality as well as team-building and work ethics. Corequisites: 32-420-346, 32-420-345, 32-420-351, 32-420-345 and 31-804-381.

32-420-323 Machine Tool 2 4 credits
Expands on basic concepts and skills using engine lathes, power saws, drill presses, bench applications, CNC setup and operation. Emphasizes safety and proper operation of tools and machines, speeds feeds, cutting tools, tool geometry, tool grinding and work-holding devices. Stresses dimensional accuracy, finish and quality with team-building and work ethics. Corequisites: 32-420-322, 32-420-346, 32-420-351, 32-420-345 and 31-804-381

32-420-324 Machine Tool 3 4 credits
Expands the concepts and skills using engine lathes, power saws, drill presses, bench applications, and advanced CNC setup and operation. Emphasizes safety and proper operation of tools and machines, speeds feeds, cutting tools, tool geometry, tool grinding and work-holding devices. Stresses dimensional accuracy, finish and quality with team-building and work ethics. Prerequisites: 32-420-323, 32-420-346, 32-420-32 and 32-420-345. Corequisites: 32-420-304, 32-420-390 and 31-804-382.

Curriculum

FIRST YEAR First Semester		Credits	Hrs/week Lec-Lab
32-420-345	Drawing Interpretation 1	2	4-0
32-420-346	Computer Numerical Control 1	2	4-0
32-420-351	Elements of Basic Metrology	2	4-0
32-420-322	Machine Tool 1*	4	4-12
32-420-323	Machine Tool 2*	4	4-12
31-801-356	Communications 1	1	2-0
31-804-381	Machine Tool Mathematics 1	2	4-0
	Semester Total	**17**	

Second Semester

32-420-304	Intermediate Metrology Applications	1	2-0
32-420-324	Machine Tool 3*	4	4-12
32-420-325	Machine Tool 4*	4	4-12
32-420-384	Computer Numerical Control Applications 1	2	1-3
32-420-388	Tool and Fixture Design	1	2-0
32-420-390	Fundamentals of Metallurgy	2	4-0
32-420-347	CNC 2	1	2-0
32-420-397	CNC 3	2	3-1
31-804-382	Machine Tool Mathematics 2	1	2-0
	Semester Total	**18**	

SECOND YEAR

First Semester

32-420-394	Tool Making Theory 1 (Die Making)	2	4-0
32-420-326	Machine Tool 5 (Die Making)*	4	4-12
32-420-327	Machine Tool 6*	5	4-12
32-420-389	Computer Numerical Control Applications 2	2	1-3
32-420-399	CNC 4	2	3-1
31-806-363	Science 1	2	2-2
	Semester Total	**17**	

Second Semester

32-419-300	Hydraulics and Mechanics	2	2-2
32-420-370	CNC 5	1	1-0
32-420-328	Machine Tool 7 (Mold Making)*	4	4-12
32-420-329	Machine Tool 8*	5	4-12
32-420-391	Computer Numerical Control Applications 3	1	1-1
32-420-393	Job Orientation	1	1-0
32-420-395	Tool Making Theory 2 (Mold Making)	2	4-0
32-442-313	Related Welding	1	2-2
	Semester Total	**17**	

* 9 week course

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Program Courses (continued)

32-420-325 Machine Tool 4 4 credits
Expands on basic concepts and skills using engine lathes, power saws, drill presses, bench applications, CNC setup and operation. Emphasizes safety and proper operation of tools and machines, speeds feeds, cutting tools, tool geometry, tool grinding and work-holding devices. Stresses dimensional accuracy, finish and quality with team-building and work ethics. Prerequisites: 32-420-323, 32-420-345, 32-420-346 and 32-420-351. Corequisites: 32-420-304, 31-804-382, 32-420-324, and 32-420-390.

32-420-326 Machine Tool 5 4 credits
Skills and knowledge necessary for advanced setups and procedures on milling machines, grinders, and lathes. Introduces both tool and cutter grinding and the selection and use of carbide tooling. Special emphasis is given to Electrical Discharge Machine and electrode development. CNC machining applications to complete course projects is enhanced. Safety, precision measurement and craftsmanship are stressed. Prerequisites: 32-420-324, 32-420-325, 32-420-384, 32-420-388 and 32-420-397. Corequisites: 32-420-389, 32-420-394, 32-420-399, and 32-420-327.

32-420-327 Machine Tool 6 5 credits
Provides the student with the skills and knowledge necessary for advanced setups and procedures on milling machines, grinders, and lathes. Students are also introduced both tool and cutter grinding and the selection and use of carbide tooling. Special emphasis is given to Electrical Discharge Machine and electrode development. CNC machining applications to complete course projects is also enhanced. Building a stamp die. Safety, precision measurement and craftsmanship are stressed. Prerequisites: 32-420-325, 32-420-384, 32-420-388, 32-420-324 and 32-420-397. Corequisites: 32-420-389, 32-420-394, 32-420-326 and 32-420-399.

32-420-328 Machine Tool 7 4 credits
Set-up and operate a CNC EDM machine, CNC machining center, and select and use superabrasives for grinding and machining. Advanced machining setups, procedures, and operations will be covered to enable students to accomplish the machining projects. Safety, precision measurement, and craftsmanship are stressed. Prerequisites: 32-420-327, 32-420-389, 32-420-394 and 32-420-399. Corequisites: 32-420-391, 32-420-329 and 32-420-395.

32-420-329 Machining Tool 8 5 credits
Set-up and operate a CNC EDM machining center, and select and use superabrasives for grinding and machining. Includes advances machining setups, procedures, and operations to accomplish the machining of a small MUD plastic injection mold or special machining project. Safety, precision measurement, and craftsmanship are stressed. Prerequisites: 32-420-327, 32-420-389, 32-420-394 and 32-420-399. Corequisites: 32-420-391, 32-420-395 and 32-420-328.

32-420-345 Drawing Interpretation 1 2 credits
Basic principles of engineering drawings and manufacturing procedures. Through interpretation and sketching, students learn to visualize the part, section or assembly. Uses drawings pertinent to the trade with examples.

32-420-346 Computer Numerical Control 1 2 credits
Hands-on and lecture course exposing students to CNC (Computer Numerical Control). Emphasizes CNC vertical milling machines and CNC turning centers. Covers all basics of beginning programming including G-codes, M-codes, Manual and Conversational programming and the Cartesian Coordinate System. Corequisite: 32-420-380.

32-420-351 Elements of Basic Metrology 2 credits
This course introduces the principles of basic dimensional measurement, layout techniques for machines, use of direct and indirect measuring tools as well as the use of length standards relative to calibration of measuring instruments and the basic operation of the Coordinate Measuring Machine.

32-420-370 Computer Numerical Control 5 1 credit
The advanced course requires students to draw complex wire-frame models and produce CAD solids. This geometry is then used to produce three-dimensional toolpaths. Prerequisites: 32-420-326 and 32-420-399. Corequisite: 32-420-389 or consent of instructor.

32-420-384 Computer Numerical Control Applications 1 2 credits
Hands-on instruction using the CNC vertical milling machine and CNC Turning Center. Emphasizes two-dimensional contouring, pocketing, drilling and basic turning and threading. Prerequisites: all first semester courses. Corequisites: 32-420-346 and 32-420-397 or consent of instructor.

32-420-388 Tool and Fixture Design 1 credit
Introduces tool design and gauging. Emphasizes jigs, fixture design, clamping, locating devices and tooling and production methods. Presents preset and qualified tooling for NC/CNC as they relate to conventional practice. Prerequisites: 32-420-322 and 32-420-323. Corequisites: 32-420-324 and 32-420-325

32-420-389 Computer Numerical Control Applications 2 2 credits
Advanced CNC Vertical Milling and Machining Center, including three-dimensional parts and multiple machining operations. Introduces the CNC wire cut machine and machines both simple and complex parts. Prerequisites: 32-420-384 and 32-420-397. Corequisite: 32-420-399 or consent of instructor.

32-420-390 Fundamentals of Metallurgy 2 credits
Introduces metallurgy, emphasizing applications, selection, identification methods and alloy influences. Studies metal properties using testing, micro-structure interpretation and heat-treatment processes. Covers tool steels, weld heat effects, failure analysis and machinability variations in cast iron, alloy steels and non-ferrous materials in detail.

32-420-391 CNC Applications 3 1 credit
Our most advanced CNC applications course devoted to machining complex toolpaths, including mold cavities and graphite electrodes. Stresses hands-on instruction and operation of CNC turning centers, vertical milling machines, machining centers and advanced CNC wire cut work. Prerequisites: 32-420-346, 32-420-384, 32-420-389, 32-420-397 and 32-420-399. Corequisites: 32-420-328 and 32-420-329.

32-420-394 Tool Making Theory 1 2 credits
Lecture course supporting Machine Tool 5 & 6 lab activities. Major emphasis on the nomenclature, theory, construction features, design, and the technology of stamping and forming dies. Student also will spend time designing and planning a special die, mold or advanced CNC project. Prerequisites: 31-804-381, 32-420-325 and 32-420-390. Corequisites: 32-420-326 and 32-420-327.

32-420-395 Tool Making Theory 2 2 credits
Lecture course supporting Machine Tool 7 & 8 lab activities. Major emphasis on nomenclature, theory, construction features, design and the technology of mold dies. The seven molding processes will be discussed. Students also will spend time designing and planning a special mold, tool, or CNC project. Prerequisites: 32-420-394 and 32-420-325. Corequisites: 32-420-328 and 32-420-329.

32-420-347 Computer Numerical Control 2 2 credits
This advanced conversational programming course emphasizes CNC Turning centers, while continuing the study of G-codes, M-codes, manual and conversational programming, the Cartesian coordinate system, and the CNC vertical milling machines. Hands on and lecture course.

32-420-397 Computer Numerical Control 3 2 credits
Manual programming of numerical control machines. Covers history justification and types of control systems. Student will program and make a part on a computer numerical control milling and turning center. Includes introduction to two-dimensional CAD-CAM computer programming system. Prerequisites: 32-420-346 Corequisite: 32-420-384

32-420-399 Computer Numerical Control 4 2 credits
Using a CAD-CAM computer programming system, student constructs parts from the simple to complex and then download the information to the CNC milling and EDM wire cut machines. Prerequisites:32-420-397, 32-420-384. Corequisite: 32-420-389

Additional Required Program Courses

32-419-300	Hydraulics and Mechanics	2 credits
32-420-393	Job Orientation	1 credit
32-442-313	Related Welding	1 credit

Career Potential:

- **Tool and Die Apprentice**
- **Mold Making Apprentice**
- **Millwright Apprentice**
- **Precision Machinist**
- **CNC Machinist**
- **CNC Programmer**
- **Machine Repair Specialist**

With additional education and/or work experience, graduates may find employment as:

- **Journey-level Tool and Die Maker**
- **Journey-level Mold Maker**
- **Journey-level Millwright**
- **Shop Owner**
- **Shop Manager**
- **Industrial Engineer**
- **Manufacturing Engineer**
- **Industrial Sales Engineer**
- **Die and/or Mold Designer**
- **Educator**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/10

Welding

Program Number: 31-442-1

One-Year Technical Diploma

Manufacturing Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 246-6102 or (800) 322-6282 Ext. 6102

About the Program

This program emphasizes hands-on training and the mastery of welding techniques with manual and semi-automatic welding processes. Students develop their technical knowledge of blueprint reading, layout, metal fabrication, metallurgy and manipulative welding skills for potential qualification or certification in oxy-fuel, stick-electrode, gas-metal arc, flux-cored arc and gas-tungsten arc processes in all positions on plate and pipe.

Welders and metal fabricators lay out, shape, form, tack and weld metal assemblies or products according to various welding codes and procedures. They produce fabricated assemblies, perform repair and maintenance welding, and work on construction projects. During fabrication of these products, students are trained in the use of hand and power tools used in the welding fabrication industry.

Unique Requirements for Graduation

30 credits with a GPA of 2.0 (C) or above. Average of 2.0 (C) or above for specific occupational courses.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

First Semester		Credits	Hrs/week Lec-Lab
31-442-301	Layout & Fabrication 1	2	1-3
31-442-312	Oxy Fuel Weld/Thermal Cutting	2	1-3
31-442-314	Arc Welding Theory	2	1-3
31-442-315	Basic Arc (SMAW)	2	1-3
31-442-318	Gas Tungsten Arc Welding 1(GTAW/TIG)	2	1-3
31-442-323	Basic Gas Metal Arc Welding (GMAW/MIG)	2	1-3
31-442-393	Drawing Interpretation	2	4-0
31-804-379	Vocational Mathematics 1	1	2-0
	Semester Total	**15**	

Second Semester			
31-442-316	Arc Welding (SMAW) Horizontal	1	1-1
31-442-320	Welding Occupational Development	1	2-0
31-442-321	Arc Welding (SMAW) Vertical	2	1-3
31-442-322	Advanced Welding Techniques	2	1-3
31-442-302	Layout and Fabrication 2	2	1-3
31-442-326	Flux Cored & Advanced Gas Metal Arc Welding (FCAW/GMAW)	2	1-3
31-442-328	Gas Tungsten Arc Welding 2 (GTAW/TIG)	2	1-3
31-442-390	Fundamentals of Metallurgy	2	4-0
	Semester Total	**14**	

Note:

- Safety procedures required in all labs.
- Prerequisites can be waived with Center approval.
- Advanced standing may be gained through Center deans.
- Certain associate degree or higher post secondary courses specific to the curriculum may substitute for courses upon approval of Center deans.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Program Courses

31-442-301 Layout and Fabrication 1 2 credits
Students perform welding fabrication techniques on common shaped products like hoods, hoppers, structural beams and manufactured products using geometric, triangulation and plate layout. Fabrication projects develop students' knowledge of hand and power tools, shearing, oxy-fuel and plasma arc hand and semi-automatic shape cutting. Calculating weld joint and bend allowances, metal forming, grinding and polishing. Layout is applied to fabrication of welded assemblies from drawings of developing a drawing and bill of materials for a part. Welding repairs and crane safety are also covered. Corequisite: 32-442-314 or consent of instructor.

31-442-302 Layout and Fabrication 2 2 credits
Students perform welding fabrication techniques on common shaped products like hoods, hoppers, structural beams and manufactured products using geometric, triangulation and plate layout. Fabrication projects develop students' knowledge of hand and power tools, shearing, oxy-fuel and plasma arc hand and semi-automatic shape cutting. Calculating weld joint and bend allowances, metal forming, grinding and polishing. Layout is applied to fabrication of welded assemblies from drawings of developing a drawing and bill of materials for a part. Welding repairs and crane safety are also covered. Prerequisite: 32-442-314 or consent of instructor.

31-442-312 Oxy Fuel Weld/Thermal Cutting 2 credits
Perform manual and semi-automatic cutting and gouging using oxy-fuel and plasma arc cutting processes. Also, oxy-fuel and plasma cutting safety and proper handling of cylinders is covered. Applications will be to English and metric dimension.

31-442-314 Arc Welding Theory 2 credits
Emphasizes welding theory, safe use of welding equipment, hand and power tools, oxy-fuel and plasma arc cutting, AWS joint, weld procedures, and defects and their causes. Electrical applications, effects of welding machine power sources, electrode selection and welding symbols will also be covered.

31-442-315 Basic Arc (SMAW) 2 credits
Students in this course will develop manipulative skills on all types of joints in the flat position using shielded metal arc welding electrodes on mild steel. Welding techniques used for structural, pipe and maintenance welding will be developed.

31-442-316 Arc Welding (SMAW) Horizontal 1 credit
Emphasizes shielded metal are welding (stick arc) techniques in the horizontal position. Included are AWS fillet and groove welds using 1/8" to 5/32" diameter E-6010, iron powder and low hydrogen electrodes on welded assemblies.

31-442-318 Gas Tungsten Arc Welding 1 (GTAW/TIG) 2 credits
Emphasis is placed on gas tungsten arc welding (TIG) techniques of stainless steel. Development of skills and techniques on all types of joints in flat and horizontal positions. Aluminum and steel techniques may also be covered.

31-442-320 Welding Occupational Development 1 credit
Applications of welding terminology, use of forms, contracting, professional ethics and employment relations are studied. Specific topics germane to the welding field in decision-making, responsibility and preparation for the welding career are covered.

31-442-321 Arc Welding (SMAW) Vertical 2 credits
Students develop manipulative skills on all types of joints in the vertical up and down positions, using E7018 & E6010 shielded metal arc welding electrodes on mild steel. Students will also develop welding techniques used for fillet and groove weld competencies to AWS D1.1 structural steel welding code.

31-442-322 Advanced Welding Techniques 2 credits
Develops manipulative skills on all types of joints in the overhead and/or pipe positions using E7018 & E6010 shielded metal arc welding electrodes on mild steel. Develop welding techniques used for fillet and groove weld competencies to AWS D1.1 structural steel welding code. Course also includes air carbon arc gouging (ACC), repairs, and other advanced welding processes and applications for related trades.

31-442-323 Basic Gas Metal Arc Welding (GMAW/MIG) 2 credits
Students develop manipulative skills on all types of joints in the flat, horizontal and vertical up and down position using short circuiting transfer. Students will perform gas metal arc welding techniques using 1/8" to 1/2" structural fabricated parts, as per AWS code standards. Emphasis is placed on operating gas metal arc welding equipment in a safe manner and determining machine set-up for metal thickness, wire size and speed.

31-442-326 Flux Cored & Advanced Gas Metal Arc Welding (FCAW/GMAW) 2 credits
Continuation of development of skills and techniques on all types of joints in the flat, horizontal and vertical up and down positions, using short circuiting and spray arc transfer. Students will also learn flux-cored gas shielding and self shielding welding techniques. Mild steel, stainless steel and aluminum (1/16" to 1" thickness) are the metals used in welding joint assemblies, as per AWS code standards.

31-442-328 Gas Tungsten Arc Welding 2 (GTAW/TIG) 2 credits
Students develop manipulative skills on all types of joints in the flat, horizontal, vertical, over head and pipe positions. Gas tungsten arc welding of stainless, aluminum, and steel welding techniques will be covered using 1/8" to 1/32" (11 ga to 20 ga) structural fabricated parts, pipe, repair welding and for other related trades, as per AWS and ASME welding code standards.

31-442-390 Fundamentals of Metallurgy 2 credits
Introduction to metallurgy with emphasis on applications, selection, identification methods and alloy influences. Properties are studied utilizing testing, micro-structure interpretation and heat treatment processes. Tool steels, weld heat effects, failure analysis as well as machinability variations in cast iron, alloy steels and non-ferrous materials are covered in detail.

31-442-393 Drawing Interpretation 2 credits
The basic principles of engineering welding drawings are interpreted through explanation, sketching and orthographic projections. The student develops and learns the procedures of interpreting industrial welding drawings, and develops a visualization of parts and fabrication assemblies. AWS welding joints, symbols and their applications on fabricated models and company prints are also covered.

Career Potential:

- **Maintenance Welder**
- **Qualified Welder**
- **Structural Welder**
- **Welder/Fabricator**

With additional education and/or work experience, graduates may find employment as:

- **Welding Apprentice**
- **Welding Foreman**
- **Welding Inspector**
- **Welding Supervisor**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Agricultural Equipment Technology

Program Number: 10-070-1

Associate in Applied Science Degree

Transportation Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 246-6102 or (800) 322-6282 Ext. 6102

About the Program

The Agricultural Equipment Technology Program is designed to develop competent and professional agricultural equipment service technicians for entry-level employment in agricultural equipment dealerships.

This course of study will specialize in agricultural tractors and implements. Students will gain technical expertise in hydraulics, power trains, electronics, fuel systems, heating, air conditioning and engine service. They will round out their professional skills with training in management, salesmanship, mathematics and principles. In addition to classroom and laboratory instruction at Madison College, students will be expected to obtain and maintain a sponsoring dealer that will provide related work experience during the scheduled internships. This program leads to an associate degree in applied science. Graduates of the program will be qualified for a rewarding career as an agricultural equipment technician.

In conjunction with the program, Madison College has entered into an agreement with the John Deere Company to provide a section of the Agricultural Equipment Technology Program specifically for the company and its dealers. This partnership will be known as John Deere Ag Tech. The classroom and laboratory situations, dealer sponsorship, and equipment studied will be John Deere. John Deere Ag Tech students will be required to obtain and maintain a John Deere dealer sponsor while completing the program.

This program also will provide the opportunity to receive the required John Deere certifications in Basic Electrical and Electronics and Basic Hydraulics, along with Service Advisor One Computer Diagnostic Systems.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-070-176	Electrical Systems	5	4-4
10-070-181	Implements 1	4	1-3
10-442-126	Metal Repair Techniques	2	2-2
10-801-195	Written Communication	3	3-0
10-804-107	College Mathematics	3	3-0
	Semester Total	**17**	
Second Semester			
10-070-178	Implements 2[2]	3	2-8
10-070-183	Hydraulics 1[2]	4	5-5
10-070-187	Occupational Experience 1	2	0-48
10-070-193	Air Conditioning[2]	2	2-4
10-104-104	Selling Principles	3	3-0
	Semester Total	**14**	
Summer Session			
10-070-175	Power Transmissions	4	2-4
10-806-139	Survey of Physics	3	2-1
	Semester Total	**7**	
SECOND YEAR			
First Semester			
10-070-177	Fuel Systems[2]	3	4-4
10-070-182	Accessories and Electronics[2]	3	4-5
10-070-184	Hydraulics 2 (elective) [2]	3	2-8
10-070-188	Occupational Experience 2[1]	2	0-48
10-531-190	Ag Tech CPR/First Aid[2]	1	4-0
10-801-197	Technical Reporting	3	3-0
	Semester Total	**15**	
Second Semester			
10-070-191	Engine Repair Theory	3	1-4
10-070-195	Engine Repair[2]	3	1-4
10-809-195	Economics	3	3-0
10-809-197	Contemporary American Society	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Semester Total	**15**	
Summer Session			
10-070-189	Occupational Experience 3	2	0-48

[1]First half of semester.
[2]Second half of semester.

Note: Proficiency in working with Windows-based computer programs and basic word processing required prior to admission or coursework must be completed by the student by the end of the first year.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

MADISON AREA TECHNICAL COLLEGE

Real world smart.

Program Courses

10-070-175 Power Transmission 4 credits
The course covers the operation, power flow, diagnosis and servicing of collar shift, synchronized and power shift transmissions. The class also discusses the operation and service of wet and dry clutches differentials, planetary drive axles, P.T.O. drives and mechanical front wheel drives.

10-070-176 Electrical Systems 1 5 credits
This class begins with a discussion of the laws of electricity as they relate to the operation of the charging, starting and lighting systems. Diagnostic testing and troubleshooting will be demonstrated on alternators, starters and lighting systems. Methods of repair will be demonstrated where methods are currently used at the dealerships.

10-070-177 Fuel Systems 3 credits
This course covers the theory of operation, construction and service of diesel engine fuel systems. Also reviewed is diesel engine compression, ignition, theory combustion, chamber design and procedures for installing, timing of fuel quantity for proper combustion. Electronic fuel delivery will be discussed as it relates to engine operation.

10-070-178 Implements 2 3 credits
This course provides instruction in the theory of operation and service of the grain combine. Students will learn how the combine processes grain, the basic components, means of service and repair of the machine. Lab work is designed to provide students with hands-on experience on combines, grain platforms and corn heads. Service and adjustment activities include the cylinder, gear boxes and power transmission components. Prerequisite: Implements 1, 10-070-181.

10-070-181 Implements 1 4 credits
This course provides instruction in the theory of operation, adjustment and service of planting equipment. Students will learn the operation and service of corn planters and grain drills. Emphasis is given to how the corn planter seed meters work and how the attachments operate. In addition, the course also provides information on the theory, operation, adjustment and service of forage harvesting machines. Machines covered include mower conditioners, square balers, round balers and forage harvesters. Bearings, clutches, U-joints and other power transmission components also are covered.

10-070-182 Accessories and Electronics 3 credits
This course will introduce the student to the type and operation temperature, pressure and speed sensors. Students will be introduced to the central control unit (CCU) and the hitch control unit (HCU). Students will be shown the procedure for recalling codes and transmission calibration procedures. This course will provide the electrical certification for John Deere Technicians. Prerequisite: Electrical Systems, 10-070-176.

10-070-183 Hydraulics 1 4 credits
This course introduces the student to the hydraulic systems found on 30 through 60 series John Deere Tractors. The component configuration and operational characteristics of these tractors will be introduced. Students will service and rebuild the radial piston pump, S.C.V. and other components of the hydraulic system. Students will follow the technical manual diagnostic procedures to troubleshoot hydraulic system problems found on these tractors.

10-070-184 Hydraulics 2 3 credits
This course provides instruction on the 6, 7 and 8000 series John Deere tractors. The component configuration and operational characteristics of these tractors will be introduced. Students will service and rebuild the axial piston pumps, SCV's and other components of the hydraulic system. Students will follow the technical manual diagnostic procedures to check out and troubleshoot the hydraulic system. Prerequisite: Hydraulics 1, 10-070-183.

10-070-187 Occupational Experience 1 (Spring Session) 2 credits
Students receive on-the-job experience in the areas of implement repair and service. Areas covered include, but are not limited to, tillage, planting and hay harvesting machines. Students also will be exposed to the operation and function of the dealership service department. Prerequisite: second-semester standing.

10-070-188 Occupational Experience 2 (Fall Session) 2 credits
Students receive on-the-job experience in the areas of combines, corn heads and grain platforms. Other areas covered include set-up, tillage and planting equipment. Prerequisite: Occupational Experience 1, 10-070-187.

10-070-189 Occupational Experience 3 (Summer Session) 2 credits
Students receive on-the-job experience in tractor engine repair, air conditioning, electrical and hydraulic system troubleshooting. Other areas covered include service department operation, warranty work and customer contacts. Prerequisite: Occupational Experience 2, 10-070-188.

10-070-191 Engine Repair Theory 3 credits
Study in this course will allow the student to develop a basic knowledge of combustion engine design and operation with the major emphasis on diesel engines. Experience in the course will provide the student with the skills and knowledge needed to diagnose, overhaul, maintain, adjust and repair engines found in agricultural machines and equipment.

10-070-195 Engine Repair 3 credits
Study in this course will allow the student to develop a basic knowledge of combustion engine design and operation with the major emphasis on diesel engines. Experience in the course will provide the student with the skills and knowledge needed to diagnose, overhaul, maintain, adjust and repair engines found in agricultural machines and equipment.

10-070-193 Air Conditioning 2 credits
This course covers the theory of operation, service and testing of air conditioning units used to cool and heat the operator's cab. Lab work consists of leak detecting, evacuation, charging component installations, electrical circuits and trouble shooting of systems. Air condition service certification tests are also given to students enrolled in this course.

10-442-126 Metal Repair Techniques 2 credits
This course covers safety, layout and measurement, grinding, drill press and lathe operation, filing, threading, properties of metals, oxy-acetylene welding, brazing and cutting, and SMAW, GMAW, GTAW and FCAW.

10-531-190 Ag Tech CPR/First Aid 1 credit
A combination of safety, first aid and CPR for emergencies which may occur in the agricultural equipment industry. Prepares students for a standard Red Cross first aid certificate. Presents the instruction and practical content of the American Heart Association's basic life support course.

Career Potential:

- **Service Technician**
- **Field Service Technician**
- **Lead Technician**
- **Shop Foreman**
- **Service Writer Coordinator**
- **Customer Support Representative**
- **Ag Equipment Salesperson**
- **Consumer Products Salesperson**
- **Service Manager**

With additional education and/or work experience, graduates may find employment as:

- **Ag Company Service Representative**
- **Ag Company Sales Representative**
- **Dealer Sales Manager**
- **Dealership Manager**
- **Dealership Owner/Operator**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Auto Collision Repair and Refinish Technician

Program Number: 31-405-1

One-Year Technical Diploma

Transportation Program Cluster

Center for Construction, Transportation, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 246-6102 or (800) 322-6282 Ext. 6102

About the Program

This one-year program provides students with the necessary skills for job entry into the metal finishing and painting areas of the auto body and light truck trade. Courses cover welding, panel replacement, metal forming, sheet metal alignment and finishing.

Unique Requirements for Graduation

Thirty-one credits with a GPA of 2.0 (C) or above. Average of 2.0 (C) or above for occupational specific courses.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

			Hrs/week
First Semester		**Credits**	**Lec-Lab**
32-405-301	Basic Sheet Metal Repair & Welding Fund	5	0-10
32-405-302	Refinishing 1	5	0-10
32-405-361	Collision Repair/Refinishing Theory 1	3	5-0
31-804-379	Vocational Mathematics 1	1	2-0
10-104-189	Customer Relations	2	2-0
	Semester Total	**16**	
Second Semester			
32-405-303	Non-Structural Panel Repair & Glass Servicing	5	0-10
32-405-304	Refinishing 2/Trim & Hardware	5	0-10
32-405-340	Collision Electrical Fundamentals	2	1-3
32-405-341	Collision Mechanical Systems	2	1-3
32-405-363	Collision Repair/Refinishing Theory 2	3	5-0
	Semester Total	**17**	

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Auto Collision Repair and Refinish Technician

Program Number: 31-405-1

Program Courses

32-405-301 Basic Sheet Metal Repair & Welding Fundamentals 5 credits
Course material covers the introduction in the use of an oxyacetylene welding/cutting outfit as related to collision repairs. A heavy emphasis is placed on the mig welding process, types of welds an techniques use of hammer and dolly, pry tools, stud guns, air and electrical tools, hydraulic-porto-power jacks and other straightening tools, used in the processes of metal finishing and plastic filling. Corequisites: 32-405-302 and 32-405-361.

32-405-302 Refinishing 1 5 credits
The refinishing phase includes instruction in the proper use and maintenance of the spray gun, refinishing panels and fenders, spot repairing of panels and fenders, and mixing of paint formulas. Application of primers, sealers, single stage, and base coat/clear coat are covered. Instruction in shop, tool and paint safety, and state and federal environmental concerns are presented. Corequisites 32-405-301 and 32-405-361.

32-405-303 Non-Structural Panel Repair & Glass Servicing 5 credits
Further development of straightening skills and sheet metal alignment is achieved by performing these activities on automobiles. Such operations as straightening damages sheet metal on fixed parts and removable panels are performed. Instruction on the replacement of fixed glass such as wind-shields, rear window, and side glass is covered using industry standards. Further instruction includes the components and procedures involved in the removal and installation of movable glass. Corequisites: 32-405-304 and 32-405-363.

32-405-304 Refinishing 2/Trim & Hardware 5 credits
The refinishing phase includes further instruction in the proper use of the spray gun, performing partial and complete refinishing repairs on vehicles. Procedures for blending and tinting of the paint to achieve an acceptable color match are practices. Shop and paint safety practices are emphasized. Instruction on the safe removal and installation of trim and hardware is covered along with specialty tools necessary to perform operations using industry accepted procedures. Prerequisite: 32-405-302 Corequisite: 32-405-363.

32-405-340 Electrical Fundamentals for Automotive Collision Repair 2 credits
This course is an introduction to automotive electrical systems, including basic electricity, trouble shooting and repair of common electrical circuits, wiring diagrams, soldering, power accessories and restraint systems. Standards for safety when working with electrical systems are emphasized.

32-405-341 Collision Mechanical Systems 2 credits
This course covers basic operations and servicing principles of brake systems, fuel and exhaust systems, heating and cooling systems, suspension and steering systems and automotive air conditioning principles including components that make up an A/C system. Regulations regarding discharging/recharging and trouble shooting as related to collision repair is also included. Safety practices regarding mechanical systems are covered.

32-405-361 Collision Repair/ Refinishing Theory 1 3 credits
Covers related information on all phases of auto body welding and metal straightening with hand tools. Collision damage analysis of sheet metal and unibodies is studied. Different types of sheet metal, such as HSS and HSLA, as well as the properties of sheet metal are discussed. Where and how to use plastic filler is presented. Paint equipment such as the operation and maintenance of the spray gun is studied. Extensive discussion takes place on refinish products, surface preparation, sanding and polishing, thinners and reducers and top coat application. Instruction in shop, tool, paint safety, and state and federal environmental concerns and regulations are presented. Corequisites: 32-405-301 and 32-405-302.

32-405-363 Collision Repair/Refinishing Theory 2 2 credits
To further promote knowledge of repair skills related to auto collision repair and refinishing, the following discussion areas are included: the evaluation of automobile bodies and damage repair techniques, unibody construction and repair techniques, vehicle preparation, metal correction and parts replacement. Additional instruction includes glass installation, electrical accessories, door and window servicing and trim replacement. Prerequisite: 32-405-301, 32-405-302 and 32-405-361. Corequisite: 32-405-303 and 32-405-304.

Career Potential:

- **Auto Body Technician**
- **Painting Technician**
- **Frame and Alignment Technician**
- **Trim and Glass Installer**

With additional education and/or work experience, graduates may find employment as:

- **Unibody Repair Specialist**
- **Manager/Shop Owner**
- **Insurance Adjuster and Appraiser**
- **Equipment and Supplies Specialist**
- **Frame and Alignment Specialist**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

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Auto Collision Repair and Refinishing Technician

Program Number: 32-405-1

Two-Year Technical Diploma

Transportation Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 246-6102 or (800) 322-6282 Ext. 6102

About the Program

The two-year Auto Collision Repair and Refinishing Technology Program is designed to provide students with skills necessary to enter or advance in the collision-repair industry. Training includes structural damage alignment, repairing and replacing sheet metal panels, welding, plastic repair and refinishing vehicles to original color match with emphasis on paint mixing, tinting and blending. Considerable time is spent developing hands-on skills that are used on the job. Skills learned in this program are also valuable to individuals choosing to enter professions other than auto collision repair and refinishing.

Program Courses

32-405-301 Basic Sheet Metal Repair & Welding Fundamentals 5 credits

Course material covers the introduction in the use of an oxyacetylene welding/cutting outfit as related to collision repairs. A heavy emphasis is placed on the mig welding process, types of welds an techniques use of hammer and dolly, pry tools, stud guns, air and electrical tools, hydraulic-porto-power jacks and other straightening tools, used in the processes of metal finishing and plastic filling. Corequisites: 32-405-302 and 32-405-361.

32-405-302 Refinishing 1 5 credits

The refinishing phase includes instruction in the proper use and maintenance of the spray gun, refinishing panels and fenders, spot repairing of panels and fenders, and mixing of paint formulas. Application of primers, sealers, single stage, and coat/clear coat are covered. Instruction in shop, tool and paint safety, and state and federal environmental concerns are presented. Corequisites 32-405-301 and 32-405-361.

32-405-303 Non-Structural Panel Repair & Glass Servicing 5 credits

Further development of straightening skills and sheet metal alignment is achieved by performing these activities on automobiles. Such operations as straightening damages sheet metal on fixed parts and removable panels are performed. Instruction on the replacement of fixed glass such as windshields, rear window, and side glass is covered using industry standards. Further instruction includes the components and procedures involved in the removal and installation of movable glass. Corequisites: 32-405-304 and 32-405-363.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			**Hrs/week**
First Semester		**Credits**	**Lec-Lab**
32-405-301	Basic Sheet Metal Repair & Welding Fund	5	0-10
32-405-302	Refinishing 1	5	0-10
32-405-361	Collision Repair/Refinishing Theory 1	3	5-0
31-804-379	Vocational Mathematics 1	1	2-0
10-104-189	Customer Relations	2	2-0
	Semester Total	**16**	
Second Semester			
32-405-303	Non-Structural Panel Repair & Glass Servicing	5	0-10
32-405-304	Refinishing 2/Trim & Hardware	5	0-10
32-405-340	Collision Electrical Fundamentals	2	4-0
32-405-341	Collision Mechanical Systems	2	4-0
32-405-363	Collision Repair/Refinishing Theory 2	3	5-0
	Semester Total	**17**	
SECOND YEAR			
First Semester			
32-405-305	Auto Refinishing/Color Adjustment	5	0-10
32-405-306	Collision Structural Welding & Panel Replacement	5	0-10
32-405-365	Collision Repair and Refinishing Theory 3	3	5-0
31-806-363	Science 1	2	2-2
	Semester Total	**15**	
Second Semester			
32-405-307	Advanced Collision Structural Repair	5	0-10
32-405-308	Collision Plastics/Composites & Adv Refinish Apps	5	0-10
32-405-334	Collision Damage Analysis and Report Writing	3	5-0
31-405-374	Collision Repair Occupational Orientation	2	4-0
	Semester Total	**15**	

***Requirements for second-year students: The following courses must be completed prior to entering the second year of the program: 32-405-301, 32-405-302, 32-405-303, 32-405-304, 32-405-340, 32-405-341, 32-405-361 and 32-405-363.**

Third semester students must purchase an approved auto body tool set before third-semester classes begin.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Program Courses (continued)

31-405-374 Collision Repair Occupational Orientation 2 credits
A study of the operation of all departments of a collision repair center. Special attention is given to the business operations of paper flow, job costing, budget preparation, insurance and AG 132 law. The students receive specific occupational information which enables them to effectively seek employment in the collision repair industry. Personal data sheet, job interviewing techniques, letters of application, seeking references and writing resumes are covered. In addition, personal concerns such as finances, time management, first impressions and evaluating strengths and weaknesses are discussed. Prerequisites: 32-405-305, 32-405-306 and 32-405-363.

32-405-304 Refinishing 2/Trim & Hardware 5 credits
The refinishing phase includes further instruction in the proper use of the spray gun, performing partial and complete refinishing repairs on vehicles. Procedures for blending and tinting of the paint to achieve an acceptable color match are practices. Shop and paint safety practices are emphasized. Instruction on the safe removal and installation of trim and hardware is covered along with specialty tools necessary to perform operations using industry accepted procedures. Prerequisite: 32-405-302 Corequisite: 32-405-363.

32-405-305 Auto Refinishing/Color Adjustment 5 credits
Vehicle refinishing techniques including preparing adjacent panels for blending, basecoat and clear coat blending, color adjustment and testing color match. Complete refinishing and panel blending is performed on repaired vehicles. Prerequisites: 32-405-301, 32-405-302, 30-405-303, 32-405-304, 32-405-340, 32-405-341, 32-405-361 and 32-405-363. Corequisites: 32-405-306 and 32-405-365.

32-405-306 Collision Structural Welding & Panel Replacement 5 credits
Structural damage analysis, measuring vehicle dimensions, pulling and straightening vehicle structures. Replacement and alignment of non-structural panels will be performed on vehicles. Collision structural section joints will be constructed and welded (GMAW). Prerequisites: 32-405-301, 32-405-302, 30-405-303, 32-405-304, 32-405-341, 32-405-361 and 32-405-363. Corequisite: 32-405-365.

32-405-307 Advanced Collision Structural Repair 5 credits
Application of replacement procedures for structural panels such as front and rear rails, rocker panels, A- pillars, B-pillars, and floor pans. Servicing and removal of drive train, suspension steering and other related components utilizing industry accepted procedures. Understanding suspension and wheel alignment angles and diagnostic procedures. Prerequisites: 32-405-305, 32-405-306 and 32-405-365. Corequisites: 32-405-308 and 32-405-334.

32-405-308 Collision Plastics/Composites & Adv Refinishing Applications 5 credits
Identification of automotive plastics, repair decisions, using adhesives and welding td repair plastics. Refinishing techniques include refinishing plastic, multi-stage finishing, and advances blending techniques and custom painting options. Prerequisites: 32-405-365, 32-405-305 and 32-405-306. Corequisites: 32-405-307 and 32-405-334.

32-405-334 Collision Damage Analysis and Report Writing 3 credits
This course includes damage analysis, vehicle identification, estimate writing sequence, use of estimation guide for parts and labor costs, and writing damage reports manually and with a computer Each student has the opportunity to estimate damaged vehicles. Prerequisites: 32-405-305, 32-405-306 and 32-405-365. Corequisite: 32-405-307 and 32-405-308.

32-405-340 Collision Electrical Fundamentals 2 credits
This course is and introduction to automotive electrical systems, including basic electricity, trouble shooting and repair of common electrical circuits, wiring diagrams, soldering, power accessories and restraint systems. Standards for safety when working with electrical systems is emphasized.

32-405-341 Collision Mechanical Systems 2 credits
This course covers basic operations and servicing principles of brake systems, fuel and exhaust systems, heating and cooling systems, suspension and steering systems and automotive air conditioning principles including components that make up an A/C system. Regulations regarding discharging/recharging and trouble shooting as related to collision repair is also included. Safety practices regarding mechanical systems are covered.

32-405-361 Collision Repair/Refinishing Theory 1 3 credits
Covers related information on all phases of auto body welding and metal straightening with hand tools and hydraulic equipment. Collision damage analysis of sheet metal and unibodies is studied. Different types of sheet metal, such as HSS and HSLA, as well as the properties of sheet metal are discussed. Where and how to use plastic filler is presented. Paint equipment such as the operation and maintenance of the spray gun is studied. Extensive discussion takes place on refinish products, surface preparation, sanding and polishing, thinners and reducers and top coat application. Instruction in shop, tool, paint safety, and state and federal environmental concerns and regulations are presented. Corequisites: 32-405-301 and 32-405-302.

32-405-363 Collision Repair/Refinishing Theory 2 3 credits
To further promote knowledge of repair skills related to auto collision repair and refinishing, the following discussion areas are included: the evaluation of automobile bodies and damage repair techniques, unibody construction and repair techniques, vehicle preparation, metal correction and parts replacement. Additional instruction includes glass installation, electrical accessories, door and window servicing and trim replacement Prerequisite: 32-405-301, 32-405-302 and 32-405-361. Corequisite: 32-405-303 and 32-405-304.

32-405-365 Collision Repair/Refinishing Theory 3 3 credits
Introduces the computer electronic system for repair of unibody vehicles, and proper anchoring and pulling procedures. Instruction on removing and replacing drive train components is included. The proper care and protection of on-board computers in autos is stressed. Sheet metal alignment, and frame and unibody straightening, along with procedures for restoring severely damaged vehicles are studied. Prerequisites: 32-405-301, 32-405-302, 32-405-303, 32-405-304, 32-405-340, 32-405-341, 32-405-361 and 32-405-363. Corequisites: 32-405-305 and 32-405-306.

Career Potential:

- **Auto Body Technician**
- **Frame and Alignment Specialist**
- **Unibody Repair Specialist**
- **Painting Technician**

With additional education and/or work experience, graduates may find employment as:

- **Insurance Adjuster and Appraiser**
- **Equipment and Supplies Specialist**
- **Foreman/Manager/Shop Owner**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Automotive Custom Painting Certificate

Program Number: 90-405-1

Certificate

Transportation Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 246-6102 or (800) 322-6282 Ext. 6102

About the Certificate

Madison Area Technical College is now offering an Automotive Custom Painting certificate. This certificate is perfect for the student who has completed Madison Area Technical College's one-year Auto Collision Repair and Refinish program or has two or more years of industry refinishing experience.

A full-time student could complete this certificate in one semester.

Curriculum

Courses		Credits
47-405-450	Introduction to Airbrushing	.40
47-405-451	Color Mapping, Graphics & Stencils	.40
47-405-452	Advanced "Noise"/Special Effects	.20
47-405-453	Multi-Color Blending/Fading	.20
47-405-454	Flames and Real Fire	.40
47-405-455	Hand Striping	.40
	Total	**2**

Courses

47-405-450 Introduction to Airbrushing .40 credits
This course is a prerequisite for all other custom paint course offerings. It is set up to take a student who has little or no airbrush experience and instruct the student on how to disassemble, clean and set-up his or her own brush. Provides instruction in paint mixture and how different reducers affect the end result (cleanliness, etc.) This course also demonstrates practice drills and proper techniques for brush strokes towards building control and skill. Instruction on types and methods of stencil use, from hand taping to compute cut materials, as well as quick overviews of commonly found "hand held" barriers and masks that provide some simple background and fill techniques. Prerequisite: one year of Madison Area Technical College's Auto Collision Repair and Refinish Technician program OR two years collision industry refinishing experience OR Introduction to Basic Painting, 47-405-449.

47-405-451 Color Mapping, Graphics & Stencils .40 credits
Learn the importance of "mapping out" or planning a project as the first step in deciding color usage and determining if the "base color" is painted first or last. The technique of "stacking" or use of multiple piece stencils to create popular graphics is covered. Students learn how shadows in proper places give an illusion of depth. Prerequisite: one year of Madison Area Technical College's Auto Collision Repair and Refinish Technician program OR two years collision industry refinishing experience OR Introduction to Airbrushing, 47-405-450.

47-405-452 Advanced "Noise"/ Special Effects .20 credits
Learn how to use hand-held stencils and barriers to achieve creative or popular backgrounds and fill techniques. Illustrates techniques in aging or patina with air brush. Prerequisite: one year of Madison Area Technical College's Auto Collision Repair and Refinish Technician program OR two years collision industry refinishing experience OR Introduction to Airbrushing,
47-405-450.

47-405-453 Multi-Color Blending/Fading .20 credits
Learn how professionals make seamless smooth color transition free from mottling and/or "dry spray." Explore color variation using known theory and methods to build eye-pleasing color schemes. Also learn the benefits and drawbacks of popular paint effects such as transparents, metallics and pearls. Prerequisite: one year of Madison Area Technical College's Auto Collision Repair and Refinish Technician program OR two years collision industry refinishing experience OR Introduction to Airbrushing, 47-405-450.

47-405-454 Flames and Real Fire .40 credits
Uses computer or hand-cut stencils to create popular graphics representations of real fire and freehand stencil/barrier use to illustrate fire. Prerequisite: one year of Madison Area Technical College's Auto Collision Repair and Refinish Technician program OR two years collision industry refinishing experience OR Introduction to Airbrushing, 47-405-450.

47-405-455 Hand Striping .40 credits
Demonstrates the proper set-up for paint mixture and brush shaping which is vital to the art of "fine lining" or outlining graphics or lettering. Showing the tools and techniques of the "brush" or hand striper will demonstrate the steps necessary to achieve nostalgic as well as modern use for this age-old skill yielding quality projects. A brief overview of "gold leafing" and other effects is presented. Prerequisite: one year of Madison Area Technical College's Auto Collision Repair and Refinish Technician program OR two years collision industry refinishing experience OR Introduction to Airbrushing, 47-405-450.

Career Potential:

- **Automotive Custom Painter**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Automotive Technician

Program Number: 32-404-2

Two-Year Technical Diploma

Transportation Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 246-6102 or (800) 322-6282 Ext. 6102

About the Program

Employment opportunities for qualified trained technicians continue to increase. This program is designed to provide students with skills necessary to enter or advance in many automotive industry positions. The technology, diagnosis and repair of automotive and light truck electrical, mechanical and hydraulic systems are studied. Considerable time is spent developing hands-on skills that are used on the job. Skills learned in the program are valuable to individuals choosing to enter professions other than automotive technician.

Unique Requirements for Graduation

58 credits with a GPA of 2.0 (C) or above overall for all courses and a 2.0 GPA (C) or above overall for all 404 and 420 courses.

Curriculum

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
32-404-319	Automotive Electrical/Electronics	3	4-2
32-404-335	Powertrain Management Systems*	5	7-11
32-404-340	Service Repair Procedures*	5	6-12
32-420-330	Metal Processes 1	2	2-2
10-890-100	College Student Success **OR**	1	1 20-890-200
	College Success (3 year students)	(3)	(3-0)
	Semester Total	**16/18**	
Second Semester			
32-404-318	Heating and Air Conditioning	2	1-2
32-404-339	Braking Systems*	5	5-13
32-404-341	Suspension and Steering Systems*	5	5-13
32-420-331	Metals Processes 2	2	2-2
31-804-379	Vocational Mathematics 1	1	2-0
	Semester Total	**15**	
SECOND YEAR			
First Semester			
32-404-355	Automatic Transmissions	5	5-13
32-404-356	Manual Drivetrain and Axles	5	5-13
31-806-363	Science 1	2	2-2
10-104-189	Customer Relations	2	2-0
	Semester Total	**14**	
Second Semester			
32-404-316	Accessories	2	1-3
32-404-336	Engine Rebuilding*	5	5-13
32-404-357	Drivability Diagnosis*	5	6-12
	Semester Total	**12**	
Total credits		**57/59**	

*Meets for 9 weeks.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Note:

Safety procedures are required in all labs.

- Prerequisites can be waived with center approval.
- Consult with the Program Director regarding advanced standing.
- Certain associate degree or higher post secondary courses specific to the curriculum may substitute for courses upon approval of center deans.
- There will be an end of program assessment that is required that has a cost as part of your fees.

Program Courses

32-404-316 Accessories 2 credits
Students study equipment supplied by both the major manufacturers of automobiles and after-market suppliers. Classroom and lab activities help students understand basic electricity, electric circuits and use of test equipment to troubleshoot problems in circuits such as lighting, windshield wipers, power windows, instruments and sound systems. Prerequisite: 32-404-319 or consent of instructor.

32-404-318 Heating and Air Conditioning 2 credits
Covers the basic principles of heating and air conditioning. Detailed studies of heating systems, air conditioning systems, including vacuum and electrical controls, and automatic temperature control systems are carried out in the classroom and the lab. Diagnosis and typical service jobs are done in the lab using up-to-date tools and diagnostic equipment. Students will receive State of Wisconsin AG 136.09 certification upon completion of this course. Prerequisite: 32-404-319 or concurrent enrollment.

32-404-319 Automotive Electricity/ Electronics 3 credits
Because of the rapid advancement of electrical/electronic controls and systems within the contemporary automobile, the need for more advanced training of these systems is essential. Upcoming technicians within the service industry must become better acquainted with the application of and diagnostic approaches to this complex subject area. Every system within the current and upcoming production vehicles will be electronically controlled or will be, at the very least, heavily influenced by this constantly evolving technology. This course will study the science of basic electricity through the application of advanced electronic controls. Sound basic diagnostic practices are studied and practiced in the laboratory setting. Must complete this course with a grade of C or better.

32-404-335 Powertrain Management Systems 5 credits
All engine operating systems are studied: engine breathing, ignition systems, computer control and sensors, fuel and air management and emission systems. Students learn how these systems operate, how to test for proper operation of systems and components, and how to use test equipment. Prerequisites: 32-404-340, 32-404-319 or concurrent enrollment.

32-404-336 Engine Rebuilding 5 credits
Students become familiar with the tools, machines and equipment used to repair automotive engines. Emphasis is placed upon the development of diagnostic ability and work skills. Prerequisites: 32-404-340, 32-404-319, 32-404-335 or consent of instructor.

32-404-339 Braking Systems 5 credits
This course covers fundamentals of automotive brake systems including drum brakes, disc brakes, hydraulic systems, power brakes and anti-skid systems. Covers wheel and tire diagnosis and repair. Steering and suspension safety inspection is covered. Laboratory work stresses brake overhaul and component reconditioning and troubleshooting of brakes. Prerequisites: 32-404-319 or concurrent enrollment.

32-404-340 Service Repair Procedures 5 credits
The theory, design and operation of the automobile engine, along with maintenance, light-duty repair and safety inspection are studied. Engine lubricating, cooling, exhaust systems and headlight aiming are studied and serviced. Theory and proper use of hand tools, test equipment, sealants, and fasteners are emphasized. Prerequisites: 32-404-319 or concurrent enrollment.

32-404-341 Suspension and Steering Systems 5 credits
Covers basic principles of passenger car construction, suspension, and wheel alignment angles. Laboratory work stresses inspection, correction or replacement of all suspension parts and the role they play in proper vehicle handling and operation. Alignment procedures and the use of modern wheel alignment machines and troubleshooting are stressed. Prerequisite: 32-404-319 or concurrent enrollment.

32-404-355 Automatic Transmissions 5 credits
Students study the electrical, mechanical and hydraulic systems of the modern automatic transmission and transaxle. Demonstrations and practice provide the opportunity to become proficient in diagnosis, service and complete rebuilding of these systems. Prerequisites: 32-404-340, 32-404-319 or consent of instructor.

32-404-356 Manual Drivetrain and Axles 5 credits
Clutches, standard transmissions, manual transaxles, drivelines and differentials are studied. Demonstrations and practice provide the opportunity to become proficient in diagnosis, service and complete rebuilding of these systems. Prerequisites: 32-404-340, 32-404-319 or consent of instructor.

32-404-357 Driveability Diagnosis 5 credits
Practical application of principles, concepts and diagnostic abilities covered in the three-prerequisite course. Advanced electrical/electronic diagnostic applications will reinforce prior competency development. Prerequisites: 32-404-340, 32-404-319, 32-404-335 or consent of instructor.

32-420-330 Metal Processes 1 2 credits
This basic metalworking course is designed to provide the student with instruction in metalworking processes. Instructional units include safety, layout and measuring, machining, oxy-acetylene welding, brazing and cutting, arc welding and properties of metals.

32-420-331 Metal Processes 2 2 credits
This study of metals provides instruction in sheetmetal work, soldering and brazing, forging and heat treatment, grinding, tool sharpening, metal casting, MIG and TIG welding, metal fabrication and the repair of metal objects. Prerequisite: 32-420-330.

AG 136/EPA Certification
For more information on this four-hour course, call (608) 246-6822 or 243-4269.

Career Potential:

- **Automotive Service Technician**
- **Auto Electronics Specialist**
- **Transmission and Drive Train Specialist**
- **Alignment Specialist**
- **Automotive Machine Specialist**
- **Service Manager or Assistant Service Manager**
- **Service Writer**

With additional education and/or work experience, graduates may find employment as:

- **Shop Foreman**
- **Specialty Technician**
- **Fleet Dispatcher**
- **Specialty/Repair Shop Owner**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Automotive Technology

Program Number: 10-602-3

Associate in Applied Science Degree

Transportation Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 246-6102 or (800) 322-6282 Ext. 6102

About the Program

Employment opportunities for automotive technicians include all aspects of automotive sales and service businesses. In the automotive service business, technicians and service writers are needed. With proper background and experience, advancement to shop foreman, service manager and other highly responsible positions is possible. Other employment opportunities include working in manufacturing as an engineering aid or as a sales representative for manufacturers of automotive tools and equipment or operating your own auto repair business.

Requirements for Graduation

66 credits with a GPA of 2.0 (C) or above. 2.0 (C) or above for each 602 course.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-602-102	Service Repair Procedures*	4	2-12
10-602-119	Automotive Electronics	3	1-2
10-602-156	Comfort Control Systems	2	1-2
10-602-166	Powertrain Management Technology*	5	4-14
10-804-107	College Mathematics	3	3-0
	Semester Total	**17**	
Second Semester			
10-420-126	Manufacturing Materials	2	1-2
10-602-157	Technical Braking Systems*	4	2-12
10-602-163	Technical Suspension and Steering*	4	2-12
10-801-195	Written Communication	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Semester Total	**16**	
SECOND YEAR			
First Semester			
10-602-153	Manual Drive Train and Axles	4	2-13
10-602-154	Fluid Power Transmission	4	2-13
10-602-162	Automobile Accessories	2	1-3
10-806-139	Survey of Physics	3	2-2
10-809-195	Economics	3	3-0
	Semester Total	**16**	
Second Semester			
10-602-150	Internal Combustion Engines*	4	4-11
10-602-152	Driveability Analysis*	4	4-11
10-602-158	Service Management	3	3-0
10-801-197	Technical Reporting	3	3-0
10-806-134	General Chemistry	4	3-9
	Semester Total	**18**	

*Meets for 9 weeks.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Notes:

COMPASS test required upon program acceptance.

College transfer courses available in lieu of existing courses (200 series) for individuals who desire continuing education. Always check receiving institution prior to enrollment.

- Safety procedures required in all labs.
- Prerequisites can be waived with center approval.
- Consult with the Program Director regarding advanced standing.
- Certain associate degree or higher post-secondary courses specific to the curriculum may substitute for courses upon approval of center dean.

Program Courses

10-602-102 Service Repair Procedures 4 credits
Automobile engine theory, design and operation are studied. Other studies included are the diagnosis and repair procedures of the engine cooling, lubricating and exhaust systems. Batteries, starting and charging systems are covered in detail along with the proper use of meters and the latest test equipment. Shop safety and proper use of hand tools is emphasized.

10-602-119 Automotive Electronics 3 credits
Because of the rapid advancement of electrical/electronic controls and systems within the contemporary automobile, the need for more advanced training of these systems is essential. Upcoming technicians within the service industry must become better acquainted with the application of and diagnostic approaches to this complex subject area. Every system within the current and upcoming production vehicles will be electronically controlled or will be, at the very least, heavily influenced by this constantly evolving technology. This course will study the science of basic electricity through the application of advanced electronic controls. Sound basic diagnostic practices are studied and practiced in the laboratory setting.

10-602-150 Internal Combustion Engines 4 credits
The internal combustion automotive engine is studied in detail by discussion, demonstration and laboratory experiments. The latest machining equipment is used to accurately diagnose, disassemble, repair, and reassemble an automobile engine. Diagnosis of engine related mechanical problems is covered. Prerequisite: Service Repair Procedures, 10-602-102, Powertrain Management Technology, 10-602-166 or consent of instructor.

10-602-152 Driveability Analysis 4 credits
Practical application of principles, concepts and diagnostic abilities covered in the 2 prerequisite courses. Advanced electrical/electronic diagnostic applications will reinforce prior competency development. Prerequisites: Service Repair Procedures, 10-602-102, Powertrain Management Technology, 10-602-166 or consent of instructor.

10-602-153 Manual Drive Train and Axles 4 credits
This automotive course focuses on developing the skills needed to diagnose, service and repair clutches, manual transmissions/transaxle, differentials, four wheel drive/all wheel drive, and drive axles. Prerequisite: Service Repair Procedures, 10-602-102, Automotive Electronics, 10-602-119, or consent of instructor.

10-602-154 Fluid Power Transmission 4 credits
This automotive course focuses on developing the skills needed to diagnose, service and repair automatic transmission/transaxles including overhaul procedures. Prerequisite: Service Repair Procedures, 10-602-102, Automotive Electronics, 10-602-119, or consent of instructor.

10-602-156 Comfort Control Systems 2 credits
Study includes basic principles of refrigeration and air conditioning including the component parts that make up the A/C units on passenger cars and light trucks. Heating and automatic temperature control are also studied. Students will receive State of Wisconsin AG 136.09 certification upon completion of this course. Prerequisite: completion or concurrent enrollment in Service Repair Procedures, 10-602-102 or consent of instructor.

10-602-157 Technical Braking Systems 4 credits
Topics include principles of drum and disc brake designs, inspection and diagnosis. Covers wheel and tire diagnosis and repair. Steering and suspension safety inspection is covered. Lab experiences including inspecting, troubleshooting and the repair and replacement of defective or worn parts of the complete brake system. The use of correct procedure and tools is stressed. Prerequisite: Service Repair Procedures, 10-602-102.

10-602-158 Service Management 3 credits
The principles of various types of business organizations are examined and applied to automotive wholesale and retail businesses, ultimately focusing on the automobile as part of the service department. Service department operation is covered in detail and depth from large organizations to small organizations. The conventional line method of management is stressed. Employment possibilities and job interviewing techniques are discussed. Prerequisite: Service Repair Procedures, 10-102-602 and Manual Drivetrain and Axles, 10-602-153 or consent of instructor.

10-602-162 Accessories 2 credits
Examines equipment supplied by both major manufacturers of automobiles and after-market suppliers. Classroom and lab activities help students to understand basic electricity, electric circuits and use of test equipment to troubleshoot problems in circuits such as lighting, windshield wipers, power windows, instruments and cruise control. Prerequisite: Service Repair Procedures, 10-602-102 or consent of instructor.

10-602-163 Technical Suspension & Steering 4 credits
Principles of suspension designs, wheel alignment angles, inspection procedures, parts replacement, steering systems, shock absorbers/struts, sway bars and frame design. On-the-job experiences include inspecting and correcting suspension angles, parts replacement, adjusting steering gears. Covers four-wheel alignment. Prerequisite: Service Repair Procedures, 10-602-102.

10-602-166 Powertrain Management Technology 5 credits
All engine operating systems are studied: engine breathing, ignition systems, computer control and sensors, fuel and air management and emission systems. Students learn how these systems operate, how to test for proper operation of systems and components, and how to use test equipment. Prerequisite: Service Repair Procedures, 10-602-102 (first nine weeks).

10-420-126 Manufacturing Materials 2 credits
Instructional units include safety, oxy-acetylene welding, brazing and cutting, shielded metal arc welding, gas metal arc welding, gas tungsten arc welding, flux cored arc welding, plasma arc cutting and conventional machining.

AG 136/EPA Certification
For more information on this four-hour course, call (608) 246-6822 or 243-4169.

Career Potential:

- **Service Writer**
- **Diagnostic Specialist**
- **Service Manager**
- **Specialized Technician**
- **Equipment Sales**
- **Equipment Service and Training Technician**
- **Service Director**
- **Lab Technician**
- **Shop Owner**
- **Fleet Manager**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Diesel and Heavy Equipment Technician

Program Number: 32-412-1

Two-Year Technical Diploma

Transportation Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 243-4169 or (800) 322-6282 Ext. 4169

About the Program

The Diesel and Heavy Equipment Technician Program is a two-year diploma program for today's diesel industry. Trucking is one of the fastest-growing industries in the U.S., and all areas of the diesel industry are experiencing shortages of qualified technicians.

One out of seven people in Wisconsin work in the manufacture, distribution, maintenance or commercial use of motor vehicles. Agriculture and construction are other major portions of Wisconsin's economy and need trained technicians to keep modern equipment running.

Students learn to repair engines, transmissions, drivelines, electrical, electronic, hydraulic, fuel, brakes, air conditioning and transport refrigeration systems; adjust suspensions and wheel alignments; and perform maintenance and tune-ups.

Students are trained in simulated shop environments and are evaluated for attendance, work quality, efficiency, safety, initiative and cooperation as if they were actual employees. The program is also certified as an Association of Diesel Specialists (ADS) "TECH SMART" school. The Association of Diesel Specialists provides scholarships and program support.

Unique Requirements for Admission

High school diploma or equivalent, including math, science, agricultural or industrial education courses. No prior automotive or mechanical experience is necessary, but it may be helpful.

Curriculum

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-890-100	College Student Success **OR**	2	2-0
20-890-200	College Success	(2)	(2-0)
10-412-140	Introduction to Diesel Technology	1	2-2
10-412-155	Heavy Duty Drivetrains**	4	1-14
10-412-164	Brake and Suspension Systems*	4	5-15
10-442-126	Metal Repair Techniques	2	1-2
10-104-189	Customer Relations	2	2-0
31-804-379	Vocational Math 1	1	2-0
	Semester Total	**16**	
Second Semester			
10-412-137	Preventive Maintenance Inspections	4	1-4
10-412-144	Fundamental Diesel Electrical/ Electronics Systems*	3	4-9
10-103-133	Excel-Beginning	1	1-1/3
10-103-137	Word-Beginning	1	1-1/3
10-412-145	Electrical/Electronics Systems Diagnostics**	3	4-9
31-806-363	Science 1	2	2-2
	Semester Total	**14**	
SECOND YEAR			
First Semester			
10-412-138	Diesel Shop Management	2	3-0
10-412-176	Diesel Fuel Systems*	4	5-10
10-412-177	Diesel Engine Diagnostics**	2	3-5
10-412-178	Diagnostic Strategies	2	1-2
10-412-188	Electronic Control Systems**	2	3-4
	Semester Total	**12**	
Second Semester			
10-412-112	Mobile Hydraulics	3	2-3
10-412-125	Cab Climate Control/Refrigeration Systems	3	2-3
10-412-184	Diesel Engine Technology	2	1-3
10-412-185	Diesel Engine Repair	4	4-10
	Semester Total	**12**	

*First nine weeks of semester.
**Second nine weeks of semester.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Notes: Safety procedures required in all labs. Prerequisites can be waived with Center approval. Advanced standing may be granted by Center deans. Certain associate degree or higher post-secondary courses specific to the curriculum may substitute for courses upon approval of Center dean/program director.

Madison Area Technical College

Diesel and Heavy Equipment Technician

Program Number: 32-412-1

Program Courses

10-412-112 Mobile Hydraulics 3 credits
Prepares the student with the knowledge and skills needed to adjust, diagnose, service and repair mobile hydraulic systems found on trucks and construction equipment. Prerequisite: Intro to Diesel Technology 10-412-140.

10-412-125 Cab Climate Control/ Refrigeration Systems 3 credits
Lectures/labs provide skills to diagnose, maintain, and service cab climate control and transport refrigeration equipment found on truck trailers and off-road equipment. Prerequisites: 10-412-112 and 10-412-145.

10-412-137 Preventative Maintenance Inspections 4 credits
This course will provide the opportunity to perform preventive maintenance inspections and conduct minor repairs on heavy-duty trucks and equipment. Also included will be preparation for taking both the written portion and practical Commercial Driver's License (CDL) test. As part of the course requirements, students will take the written tests at the Department of Motor Vehicles (DMV) test center. Corequisite 10-412-144

10-412-138 Diesel Shop Management 2 credits
The student will gain the knowledge needed to function in a typical service department setting. The student will learn what it takes to manage a service department, the costs involved in running the department and the day-to-day problems that arise in the service department. General business operational procedures, record keeping and cost effectiveness will also be part of this course. Prerequisites: all first year courses or consent of program director

10-412-140 Introduction to Diesel Technology 1 credit
Includes a discussion of the job requirements, skills needed, career options, and employment opportunities in diesel equipment repair and maintenance. Introduces shop procedures, safety practices, tools and the use of service manuals. Prerequisites: Enrollment permitted only with adequate COMPASS(or equivalent assessment test) scores in reading, writing, math and mechanical reasoning.

10-412-144 Fundamental Diesel Electrical/ Electronic Systems 3 credits
Theory and lab experiences in this course are designed to introduce the student to the diesel electrical/electronic systems used on today's modern trucks and construction equipment. Fundamental theory of electricity and electronics, troubleshooting techniques, use of digital multimeter and current clamp, types of electrical circuits, wiring, components, batteries and the use of wiring diagrams will be covered. Prerequisites: Enrollment permitted only with adequate COMPASS test scores in reading, writing, math and mechanical reasoning. Corequisite: 10-412-137

10-412-145 Electrical/Electronic Systems Diagnostics 3 credit
Theory and laboratory experiences in this course are designed to give the student the knowledge and skills needed to diagnose, service, and repair heavy-duty electrical systems found on today's modern trucks and off-road equipment. Corequisite: 10-412-144.

10-412-155 Heavy Duty Drivetrains 4 credits
This course prepares the student with the knowledge and skills needed to adjust, diagnose, maintain, service and repair heavy duty drivetrains found on trucks and construction equipment. Corequisite: 10-412-140.

10-412-164 Brake and Suspension Systems 4 credits
Prepares the student with the knowledge and skills needed to adjust, diagnose, service and repair heavy duty brakes, and suspension systems. Students will also perform vehicle alignment procedures and utilize various alignment equipment. Corequisite: Intro To Diesel Technology 10-412-140.

10-412-176 Diesel Fuel Systems (9 weeks) 4 credits
Lectures and labs allow students to diagnose, service and repair diesel fuel systems found on trucks, off-road and agricultural equipment. Prerequisites: 10-412-140, 10-412-145 and completion of or concurrent enrollment: 10-412-112.

10-412-177 Diesel Engine Diagnostics 2 credits
Lectures and lab use the latest in diagnostic equipment to evaluate engine performance and diagnose power complaints on mechanical and computer controlled diesel fuel injection systems Prerequisite: 10-412-176.

10-412-178 Diagnostic Strategies 2 credits
Explores the logical thought process used analyzing and diagnosing system malfunctions and performance problems. Diagnostic and problem solving techniques will be included. Also included will be evaluating failures, classifying failures, problems and documentation of findings. Prerequisites: all first year courses or consent of program director

10-412-184 Diesel Engine Technology 2 credits
Study in this course will allow the student to develop a basic knowledge of design, construction and operating principles of the diesel engine. Service, maintenance and the types of repairs made on diesel engines and diesel engine support systems will be a major emphasis of the course. Prerequisite: 10-412-140.

10-412-185 Diesel Engine Repair 4 credits
Lectures and labs teach students to maintain, service and repair diesel engines and diesel engine support systems. The course also includes precision measuring, failure analysis and parts inspection. Prerequisite: 10-412-140. Corequisite: 10-412-184.

10-412-188 Electronic Control Systems 2 credits
This course provides the student with the experience needed to diagnose and service modern electronic control systems used on trucks and construction equipment. The course also includes electronic controlled diesel engines, ABS brake systems, electronic controlled transmissions, and other computer controlled electronic vehicle systems. Prerequisites: 10-103-133, 10-103-137, 10-412-155 and 10-412-164. Corequisite: 10-412-176, 10-412-177

10-442-126 Metal Repair Techniques 2 credits
This course covers safety, layout and measurement, grinding, drill press and lathe operation, filing, threading, properties of metals, oxy-acetylene welding, brazing and cutting, and SMAW, GMAW, GTAW and FCAW.

Additional required course descriptions may be found on the Madison College Website.

Career Potential:

- **Diesel and Heavy Equipment Technicians**
  Diagnose, repair and service medium and heavy duty trucks, light and heavy construction equipment or agricultural equipment and machinery.
- **Fleet Maintenance Technicians**
  Keep records on fleet vehicles and perform general maintenance, inspections and repairs.
- **Fuel Injection Technicians**
  Diagnose, repair and service fuel systems and governing devices on all types of diesel engines.
- **Alignment Specialists**
  Use computerized alignment equipment to diagnose, repair and adjust medium and heavy duty truck suspension systems.
- **Engine Rebuild Specialists**
  Disassemble, inspect, reassemble and test engines to factory specifications with dynamometer.

With additional education and/or experience, graduates may find employment as:

- **Service Writers or Managers**
- **Shop Foremen**
- **Team Leaders**
- **DOT Inspectors**
- **Factory Service Representatives**
- **Fleet Maintenance Managers**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Diesel Equipment Technology

Program Number: 10-412-1

Associate in Applied Science Degree

Transportation Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 246-6102 or (800) 322-6282 Ext. 6102

About the Program

The associate-degree Diesel Equipment Technology program (Top Tech) is designed to meet the needs of today's diesel industry—which is rapidly changing due to electronically controlled systems, computers and on board diagnostics. Today's newest concerns are with diesel engine exhaust emissions. Dealerships and fleets need technicians with advanced diagnostic, troubleshooting and critical thinking skills. Top Tech, a Madison College-industry partnership, allows companies to sponsor students as paid interns. The on-the-job training builds technical expertise and helps students learn to use sophisticated equipment to diagnose and correct problems. In addition, the program's management and communication courses will help graduates qualify for promotions throughout their careers.

Trucking is one of the fastest-growing industries in the U.S. In Wisconsin, one out of seven people work in the manufacture, distribution, maintenance or commercial use of motor vehicles. Agriculture and construction are also major portions of Wisconsin's economy and require trained technicians to keep modern equipment up and running. All areas of the diesel industry are experiencing shortages of qualified technicians.

Students learn Automotive Service Excellence (ASE) and Association of Diesel Specialists (ADS) standards: to repair engines, transmissions, drivelines, electrical, electronic, hydraulic systems, fuel, brake, air conditioning and transport refrigeration systems; to adjust suspensions and align wheels and to perform maintenance and tune-ups. Students are trained in simulated shop environments and evaluated like actual employees.

The program is a National Automotive Technicians Education Foundation/NATEF/ASE master certified medium/heavy truck program, and certified as a "TECH SMART" school by ADS. The Association of Diesel Specialists provides scholarships and program support. This program also works with the "2001" Diesel Consortium of approximately 40 companies and developed the Top Tech educator/student industry partnership.

Unique Requirements for Admission

1) A TOP TECH industry sponsor; 2) high school diploma or equivalent with recommended courses in math, science and communications. Agriculture or industrial education classes are recommended. Minimum high school GPA of 2.0 if required. Mechanical experience will be helpful.

Curriculum

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-890-100	College Student Success **OR**	2	2-0
20-890-200	College Success	(2)	(2-0)
10-412-137	Preventive Maintenance Inspections	4	1-4
10-412-144	Fundamental Diesel Electrical/ Electronics Systems*	3	4-9
10-412-145	Electrical/Electronics Systems Diagnostics**	3	4-9
10-442-126	Metal Repair Techniques	2	1-2
10-804-110	Elem Alg w/Apps	3	3-0
	Semester Total	**17**	
Second Semester			
10-412-112	Mobile Hydraulics	3	2-2
10-412-155	Heavy Duty Drivetrains**	4	4-14
10-412-164	Brake and Suspension Systems*	4	5-15
10-412-190	Diesel Equipment Lab Experience 1†	1	1-35
10-801-195	Written Communication	3	3-0
10-804-113	College Technical Math 1A	3	3-0
	Semester Total	**18**	
Summer Semester			
10-412-195	Occupational Experience (432 hrs.)	2	0-48
	Total	**2**	
SECOND YEAR			
First Semester			
10-412-125	Cab Climate Control/Refrigeration Systems**	3	2-3
10-412-184	Diesel Engine Technology	2	1-3
10-412-185	Diesel Engine Repair	4	4-10
10-801-197	Technical Reporting	3	3-0
10-806-139	Survey of Physics	3	2-2
	Semester Total	**15**	
Second Semester			
10-412-176	Diesel Fuel Systems*	4	5-10
10-412-177	Diesel Engine Diagnostics**	2	3-5
10-412-138	Diesel Shop Management	2	2-0
10-412-178	Diagnostic Strategies**	2	2-4
10-412-188	Electronic Control Systems	2	3-4
10-809-195	Economics	3	3-0
10-809-199	Psychology of Human Relations	3	3-0
	Semester Total	**18**	

*Offered during the first nine weeks of the semester.
**Offered during the second nine weeks of the semester.
†1 week/36 hours.

Notes: Prerequisites can be waived with program director approval. Advanced standing may be granted by the dean/program director. Certain associate degree or higher post-secondary courses specific to the curriculum may substitute for courses upon approval of your dean/program director. Entrance at nine-week intervals with advanced standing and approval of center dean.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Program Courses

10-412-112 Mobile Hydraulics 3 credits
Prepares the student with the knowledge and skills needed to adjust, diagnose, service and repair mobile hydraulic systems found on trucks and construction equipment.

10-412-125 Cab Climate Control/Refrigeration Systems 3 credits
Lectures/labs provide skills to diagnose, maintain and service cab climate control and transport refrigeration equipment found on truck trailers and off-road equipment. Prerequisites: Mobile Hydraulics, 10-412-112 and Electrical/Electronics Systems Diagnostics, 10-412-145.

10-412-137 Preventative Maintenance Inspections4 credits
This course will provide the opportunity to perform preventive maintenance inspections and conduct minor repairs on heavy-duty trucks and equipment. Also included will be preparation for taking both the written portion and practical Commercial Driver's License (CDL) test. As part of the course requirements, students will take the written tests at the Department of Motor Vehicles (DMV) test center. Corequisite:10-412-144

10-412-138 Diesel Shop Management 2 credits
The student will gain the knowledge needed to function in a typical service department setting. The student will learn what it takes to manage a service department, the costs involved in running the department and the day-to-day problems that arise in the service department. General business operational procedures, record keeping and cost effectiveness will also be part of this course. Prerequisites: all first year courses or consent of program director.

10-412-144 Fundamental Diesel Electrical/ Electronic Systems 3 credits
Theory and lab experiences in this course are designed to introduce the student to the diesel electrical/electronic systems used on today's modern trucks and construction equipment. Fundamental theory of electricity and electronics, troubleshooting techniques, use of digital multimeter and current clamp, types of electrical circuits, wiring, components, batteries and the use of wiring diagrams will be covered. Prerequisites: Enrollment permitted only with adequate COMPASS test scores in reading, writing, math and mechanical reasoning. Corequisite: 10-412-137

10-412-145 Electrical/Electronic Systems Diagnostics 3 credits
Theory and laboratory experiences in this course are designed to give the student the knowledge and skills needed to diagnose, service, and repair heavy-duty electrical systems found on today's modern trucks and off-road equipment. Prerequisite: Fundamental Diesel Electrical/ Electronics Systems, 10-412-144.

10-412-155 Heavy Duty Drivetrains 4 credits
This course prepares the student with the knowledge and skills needed to adjust, diagnose, maintain, service and repair heavy duty drivetrains found on trucks and construction equipment.

10-412-164 Brake and Suspension Systems 4 credits
Prepares the student with the knowledge and skills needed to adjust, diagnose, service and repair heavy duty brakes, and suspension systems. Students will also perform vehicle alignment procedures and utilize various alignment equipment.

10-412-176 Diesel Fuel Systems 4 credits
Lectures and labs allow students to diagnose, service and repair diesel fuel systems found on trucks, and agricultural equipment. Prerequisites: Electrical/Electronics Systems Diagnostics, 10-412-145 and completion of or concurrent enrollment: Mobile Hydraulics, 10-412-112.

10-412-177 Diesel Engine Diagnostics 2 credits
Lectures and labs use the latest in diagnostic equipment to evaluate engine performance and diagnose power complaints on mechanical and computer controlled diesel fuel injection systems. Prerequisite: Diesel Fuel Systems, 10-412-176.

10-412-178 Diagnostic Strategies 2 credits
Explores the logical thought process used analyzing and diagnosing system malfunctions and performance problems. Practical hands-on experiences of diagnostic and problem solving techniques will be included. Also included will be evaluating failures, classifying failures, problems and documentation of findings. Prerequisites: all first year courses or consent of program director.

10-412-184 Diesel Engine Technology 2 credits
Students develop basic knowledge of design, construction and operating principles of the diesel engine. The course emphasizes the service, maintenance and the types of repairs made on diesel engines and diesel engine support systems.

10-412-185 Diesel Engine Repair 4 credits
Lectures and labs teach students to maintain, service and repair diesel engines and engine support systems. The course also includes precision measuring, failure analysis and parts inspection. Corequisite: Diesel Engine Technology, 10-412-184.

10-412-188 Electronic Control Systems 2 credits
This course provides the student with the experience needed to diagnose and service modern electronic control systems used on trucks and construction equipment. The course includes electronic controlled diesel engines, ABS brake systems, electronic controlled transmissions and other computer controlled electronic vehicle systems. Prerequisites: Heavy Duty Drivetrains, 10-412-155, Brake and Suspension Systems, 10-412-164 and Diesel Fuel Systems, 10-412-176. Corequisite: Diesel Engine Diagnostics, 10-412-177

10-412-190 Diesel Equipment Lab Experience 1 1 credit
Students service various trucks, construction and industrial equipment. Emphasizes daily shop operations, procedures and safe work habits. Simulated on-the-job experiences develop and apply students' knowledge and skills. Prerequisite: All first year program courses.

10-412-195 Occupational Experience 2 credits
As interns, students work on electrical/electronic systems, vehicle and equipment maintenance, heavy duty brakes, suspensions, drive trains and general shop maintenance. Types of jobs and competencies employed may vary depending on what area of the industry the employer represents. Technical competencies for this course may be performed either alone, as an experienced technician's helper or a combination thereof. Prerequisites: All first year program courses.

Career Potential:

- **Diesel Equipment Technicians**
  Use sophisticated equipment to analyze and adjust engine performance and do tests and service to meet emissions standards.
- **Electronic Systems Diagnostic Specialists**
  Test, analyze, service and repair computerized and electronic systems.
- **Engineering Assistants**
  Work with engineers and manufacturers to test and adjust prototype engines and equipment.
- **Field Service Representatives**
  Are experts on specific equipment. Travel to dealerships to solve unique problems.
- **Assistant Service Managers**
  Assist manager, meet customers and help technicians diagnose problems.
- **Fleet Maintenance Managers**
  Are responsible for general maintenance, scheduling, inspections, repairs and keeping vehicle records.

With additional education and/or experience, graduates may find employment as:

- **Service Writers or Managers**
- **Shop Foremen**
- **Team Leaders**
- **DOT Inspectors**
- **Factory Service Representatives**
- **Equipment Sales Specialists**
- **Research and Development Technicians**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Motorcycle, Marine and Outdoor Power Products Technician

Program Number: 31-461-2

One-Year Technical Diploma

Transportation Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 246-6102 or (800) 322-6282 Ext. 6102

About the Program

If you have the ability to take something apart, make an adjustment or two, reassemble it and have it work better than ever, you can apply that talent to all kinds of small engines—outboard motors, motorcycles, snowmobiles, chain saws, lawn and garden equipment and even some construction equipment. The marine/motorcycle/air-cooled engine field has experienced phenomenal growth in the past and is expected to grow at an even faster rate in coming years. Career opportunities exist in all areas of the country in both urban and rural areas.

This program offers detailed instruction in the operation, maintenance and repair of internal combustion engines and the equipment they power. Students study electrical systems and power trains; learn welding, machining, measuring, sharpening and fabrication techniques; and gain hands-on experience working on a wide variety of engines and equipment.

Service shop management classes provide students with basic principles, including financial, operational and marketing, to set up their own small engine dealership or service shop.

Unique Requirements for Graduation

30 credits with a GPA of 2.0 (C) or above.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

			Hrs/week
First Semester		**Credits**	**Lec-Lab**
32-420-330	Metal Processes 1	2	3-1
31-461-324	Basic Two- and Four-Cycle Engines∆	5	8-12
31-461-325	Engine Rebuilding∆	5	8-12
31-461-328	Small Engine Lab*	1	0-4
10-104-189	Customer Relations	2	2-0
	Semester Total	**15**	
Second Semester			
32-420-331	Metal Processes 2	2	3-1
31-461-326	Electrical and Hydraulic Systems∆	5	8-12
31-461-327	Power Transmissions and MMOPP∆	5	8-12
31-461-328	Small Engine Lab*	1	0-4
10-102-134	Business Organization & Mgmt	2	3-0
	Semester Total	**15**	

*Course is taken twice by each student, once in each semester.

∆Course is nine weeks in length.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Motorcycle, Marine and Outdoor Power Products Technician

Program Number: 31-461-2

Program Courses

32-420-330 Metal Processes 1 2 credits
This basic metalworking course is designed to provide the student with instruction in metalworking processes. Instructional units include safety, layout and measuring, machining, oxy-acetylene welding, brazing and cutting, arc welding and properties of metals.

32-420-331 Metal Processes 2 2 credits
This study of metals provides instruction in sheetmetal work, soldering and brazing, forging and heat treatment, grinding, tool sharpening, metal casting, MIG and TIG welding, metal fabrication and the repair of metal objects. Prerequisite: 32-420-330.

31-461-324 Basic Two- and Four-Cycle Engines 5 credits
This nine-week course covers the principles of small internal combustion engines, including two-cycle and four-cycle. Design, construction, engine testing, and diagnosing are all covered. Students become familiar with the tools, machines and equipment that are used for engine repair work in the power equipment shop. Corequisites: 31-461-325 and first semester 31-461-328.

31-461-325 Engine Rebuilding 5 credits
This nine-week course covers disassembly, repairing, re-assembly and engine break-in. Other topics covered include engine tune-up, carburetion and electrical systems as well as snowmobiles, chain saws, sharpening and balancing of rotating elements are included. Corequisites: 31-461-324 and first semester 31-461-328.

31-461-326 Electrical and Hydraulic Systems 5 credits
This nine-week course covers electrical systems in great detail. Students study the basic principles of electricity and magnetism. The proper use of meters is covered. Students learn how to service and troubleshoot charging, ignition, starting, safety interlocks and instruments. Basic hydraulic systems also are covered. Prerequisites: 31-461-324 and 31-461-325.

31-461-327 Power Transmissions and Motorcycle, Marine and Outdoor Power Products 5 credits
This nine-week course covers power transmissions of all of the above equipment. Topics include transmissions, clutches, hydro transaxles, wheels, tires, belts, chains and stern drives. ATVs also are studied in detail. Prerequisite: 31-461-326.

31-461-328 Engine Lab 1 credit
Students work on individual projects that have been approved by the instructor, such as building a motorcycle engine stand or developing advanced technical knowledge or skill in any of the motorcycle, marine or small engine service areas. First semester Corequisites: 31-461-324 and 31-461-325; second semester prerequisite: first semester of 31-461-328.

Career Potential:

- **Outdoor Power Equipment Technicians**

Work on marine, outboard, motorcycle and snowmobile power equipment; lawn and garden equipment; construction equipment; chain saws; golf course equipment; and other small engines.

- **Service Writer**
- **Parts Manager**
- **Factory Service Representative**
- **Power Equipment Salesperson**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Associate Degree Nursing

Program Number: 10-543-1

Associate in Applied Science Degree

Nursing Program Cluster

Center of Health & Safety Education

Program offered at Madison, Reedsburg and Watertown Campuses

For information call: (608) 246-6065 or (800) 322-6282 Ext. 6065

About the Program

Accredited by the National League for Nursing Accrediting Commission http://NLNAC.org, 3343 Peachtree Road NE Suite 500, Atlanta, GA 30326, (404) 975-5000 and approved by the Wisconsin Department of Regulation and licensed by the Board of Nursing, this program prepares practitioners to function with judgment and technical competence while providing nursing care to patients of all ages. Upon completion, students are eligible to write the national exam for licensure as a registered nurse. Emphasis is on critical thinking, self-direction and independence. Helpful aptitudes and interests include respect for uniqueness of individuals; a willingness to follow procedures carefully, under-standing that errors may have serious consequences; and an ability to work and communicate with others, to be precise and exact work under pressure, and react quickly in an emergency.

Application Process

To apply to the program, students must submit an application & required documents. A completed packet consists of the completed application form, $30 application fee (if not previously paid), $5 online processing fee per application, high school transcripts or GED/HSED test scores, college transcript(s) and COMPASS/ASSET test scores.

Unique Requirements for Admission

1) High school graduation or HSED or GED; 2) Satisfactory score on the ACT, SAT, COMPASS, ASSET or equivalent assessment test;
3) Chemistry: Two semesters of high school chemistry with a lab component with a grade of C or better each semester; or a four-credit college-level chemistry course with a lab component (10-806-134, General Chemistry or a higher level course), with a grade of C or better;
4) Algebra competency (within the last two years) demonstrated through satisfactory competency test scores or a college algebra course, with a grade of C or better.

NOTE: The chemistry and algebra requirement (see number 3 and 4 above) must be completed at the time of application. This means that you must have already completed this requirement at the time you apply.

Petition Process

After students have been determined qualified for the program, they pay their deposit to secure their spot and be issued a Priority date. This is used only for sequencing if there are more Petitioners than spaces available. To be eligible to petition, students must have satisfactorily completed all the listed general education requirements and have satisfactorily taken their TEAS testing. Please read all the detail requirements listed on the Petition Process tab on the Nursing web pages.

Licensed Practical Nurses may be granted advanced standing in nursing courses on the basis of prior education and experience or examination. Licensed Practical Nurses must apply to the Nursing Completion LPN to A DN program, meet all the stated admission requirements, have all the required general education support classes completed with grades of C or above before they are in line for third semester entry.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

Pre-Nursing Courses:		Credits	Hrs/week Lec-Lab
30-543-300	Nursing Assistant*	3	2.1
10-801-195	Written Communication* **OR**	3	3-0
20-801-201	English Comp 1*	(3)	(3-0)
10-801-198	Speech* **OR**	3	3-0
10-801-196	Oral/Interpersonal Communications* **OR**	(3)	(3-0)
20-810-201	Fundamentals of Speech*	(3)	(3-0)
	(Note: Speech only, English 2 will no longer suffice.)		
20-806-207	Anatomy and Physiology 1*	4	3-2
20-806-208	Anatomy and Physiology 2*	4	3-2
20-806-273	Microbiology* **OR**	4	3-2
20-806-274	Microbiology * (UW Madison transfer requirement)	(5)	(3-2)
20-809-203	Intro to Sociology* **OR**	3	3-0
10-809-197	Contemporary American Society*	(3)	(3-0)
20-809-231	Intro to Psychology*	3	3-0
20-809-233	Developmental Psychology*	3	3-0
	Elective*	5	5-0
	Total	**35**	

FIRST YEAR			
First Semester		**Credits**	**Hrs/week Lec-Lab**
10-543-101	Nursing Fundamentals	2	2-0
10-543-102	Nursing Skills	3	0-6
10-543-103	Nursing Pharmacology	2	2-0
10-543-104	Nursing: Intro to Clinical Practice	2	0-6
	Semester Total	**9**	
Second Semester			
10-543-105	Nursing Health Alterations	3	3-0
10-543-106	Nursing Health Promotion	3	3-0
10-543-107	Nursing Clinical Care Across the Lifespan	2	0-6
10-543-108	Nursing: Intro to Clinical Management	2	0-6
	Semester Total	**10**	

SECOND YEAR			
First Semester			
10-543-109	Nursing Complex Health Alterations 1	3	3-0
10-543-110	Nursing Mental Health Community Concepts	2	2-0
10-543-111	Nursing Intermediate Clinical Practice	3	0-9
10-543-112	Nursing Advanced Skills	1	0-2
	Semester Total	**9**	
Second Semester			
10-543-113	Nursing Complex Health Alterations 2	3	3-0
10-543-114	Nursing Management Concepts	2	2-0
10-543-115	Nursing Advanced Clinical Practice	3	0-9
10-543-116	Nursing Clinical Transition	2	0-6
	Semester Total	**10**	

* Students are required to complete all the listed general education requirements **prior to** petitioning for entry into core Nursing courses. TEAS testing and possible remediation are also required (more information regarding petitioning and TEAS testing can be found on the web site). Electives may be either 100 or 200 level courses. Students are encouraged to take college transfer courses (200-level courses) for educational advancement.

** Upon successful completion of first year courses, students are eligible to take LPN licensure exam.

Note: A copy of the Functional Abilities necessary to successfully complete the program of study is available on the web site.

Madison Area Technical College

Associate Degree Nursing

Program Number: 10-543-1

Program Requirements

1) Physical health exam within three months prior to beginning the first nursing course, current TB skin test and completion of all required immunizations; 2) Physical and mental abilities essential to successfully complete the program are referred to as Functional Abilities. A copy of these functions are available on the web site; 3) Caregiver Background Checks (CBC). See the MATC Website for Health, Human and Protective Services Policy; and 4) Current "Health Care Professional" CPR certification.

Online Courses

All nursing theory courses are available online. Students who are enrolled in program courses may register for online courses All program policies apply to online and face-to-face courses. Due to graduation verification and licensing paperwork, all fourth semester classes MUST be taken at MATC.

Program Courses

10-543-101 Nursing Fundamentals 2 credits
This course focuses on basic nursing concepts that the beginning nurse will need to provide care to diverse patient populations. Current and historical issues impacting nursing will be explored within the scope of nursing practice. The nursing process will be introduced as a framework for organizing the care of patients with alterations in cognition, elimination, comfort, grief/loss, mobility, integument, and fluid/electrolyte balance.

10-543-102 Nursing Skills 3 credits
This course focuses on development of clinical skills and physical assessment across the lifespan. Content includes mathematic calculations and conversions related to clinical skills, blood pressure assessment, aseptic technique, wound care, oxygen administration, tracheostomy care, suctioning, management of enteral tubes, basic medication administration, glucose testing, enemas, ostomy care and catheterization. In addition the course includes techniques related to obtaining a health history and basic physical assessment skills using a body systems approach.

10-543-103 Nursing Pharmacology 2 credits
This course introduces the principles of pharmacology, including drug classifications and their effects on the body. Emphasis is on the use of the components of the nursing process when administering medications.

10-543-104 Nursing: Introduction to Clinical Practice 2 credits
This introductory clinical course emphasizes basic nursing skills and application of the nursing process in meeting the needs of diverse clients. Emphasis is placed on performing basic nursing skills, the formation of nurse-client relationships, communication, data collection, documentation and medication administration.

10-543-105 Nursing Health Alterations 3 credits
This course elaborates upon the basic concepts of health and illness as presented in Nursing Fundamentals. It applies theories of nursing in the care of clients through the lifespan, utilizing problem solving and critical thinking. This course will provide an opportunity to study conditions affecting different body systems and apply therapeutic nursing interventions. It will also introduce concepts of leadership, team building, and scope of practice.

10-543-106 Nursing Health Promotion 3 credits
This course will cover topics related to health promotion in the context of the family. We will cover nursing care of the developing family, which includes reproductive issues, pregnancy, labor and delivery, post-partum, the newborn and the child. Recognizing the spectrum of healthy families we will discern patterns associated with adaptive and maladaptive behaviors applying mental health principles. An emphasis is placed on teaching and supporting healthy lifestyles choices. Nutrition, exercise/stress management, empowerment and risk reduction practices are highlighted. Study of the family will cover dynamics, functions, discipline styles and stages of development.

10-543-107 Nursing Clinical Care Across the Lifespan 2 credits
This clinical experience applies nursing concepts and therapeutic interventions to clients across the lifespan. It also provides an introduction to concepts of teaching and learning. Extending care to include the family is emphasized.

10-543-108 Nursing: Intro. to Clinical Management 2 credits
This clinical experience applies nursing concepts and therapeutic nursing interventions to groups of clients. It also provides an introduction to leadership, management and team building.

10-543-109 Nursing Complex Health Alterations 1 3 credits
Complex Health Alterations 1 prepares the learner to expand knowledge from previous courses in caring for clients with alterations in musculoskeletal, cardiovascular, respiratory, endocrine and hematologic systems as well as clients with fluid/ electrolyte and acid-base imbalance, and alterations in comfort.

10-543-110 Nursing Mental Health Community Concepts 2 credits
This course will cover topics related to the delivery of community and mental health care. Specific health needs of individuals, families, and groups will be addressed. Attention will be given to diverse and at-risk populations. Mental health concepts will concentrate on adaptive/maladaptive behaviors and specific mental health disorders. Community resources will be examined in relation to specific types of support offered to racial, ethnic, economically diverse individuals and groups.

10-543-111 Nursing Intermediate Clinical Practice 3 credits
This intermediate level clinical course develops the RN role when working with clients with complex health care needs. A focus of the course is developing skills needed for managing multiple clients and priorities. Using the nursing process, students will gain experience in adapting nursing practice to meet the needs of clients with diverse needs and backgrounds.

10-543-112 Nursing Advanced Skills 1 credit
This course focuses on the development of advances clinical skills. Content includes advanced IV skills, blood product administration, chest tube systems, basic EKG interpretation and nasogastric/feeding tube insertion.

10-543-113 Nursing Complex Health Alterations 2 3 credits
This course prepares the learner to expand knowledge and skills from previous courses in caring for clients with alterations in the immune, neuro-sensory, musculoskeletal, gastrointestinal, hepatobiliary, renal/urinary and the reproductive systems. The learner will also focus on management of care for clients with high risk perinatal conditions, high risk newborns and the ill child. Synthesis and application of previously learned concepts will be evident in the management of clients with critical/life threatening situations.

10-543-114 Nursing Management Concepts 2 credits
This advanced clinical course covers nursing management and professional issues related to the role of the RN emphasis is paced on preparing for the RN practice.

10-543-115 Nursing Advanced Clinical Practice 3 credits
This advanced clinical course requires the student to integrate concepts from all previous courses in the management of groups of clients facing complex health alterations. Students will have the opportunity to further develop critical thinking skills using the nursing process in making clinical decisions. Continuity of care through interdisciplinary collaboration is emphasized.

10-543-116 Nursing Clinical Transition 2 credits
This clinical experience integrates all knowledge learned in the previous course in transitioning to the role of the graduate nurse. The course promotes relatively independent clinical decisions, delegations, and works collaboratively with others to achieve client and organizational outcomes.

Career Potential:

- **Registered Nurse (RN)** Board Exam (NCLEX), graduates may work as registered nurses in a variety of healthcare settings including clinics, hospitals, extended-care facilities, doctor's offices, home health agencies and selected industrial and business settings.

With additional education graduates may:

- **Attain a Bachelors of Science in Nursing Degree**
- **Attain a Master of Science in Nursing Degree**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev: 03/10

Madison Area Technical College

Effective: 2010-2011

Nursing Assistant

Program Number: 30-543-1

Less-Than-One-Semester Programs

Nursing Program Cluster

Center of Health & Safety Education

Program offered at Madison, Fort Atkinson, Portage, Reedsburg and Watertown Campuses

For information call: (608) 246-6065 or (608) 258-2479 (800) 322-6282 ext. 6065 or 2479

About the Nursing Assistant Program

The Nursing Assistant program is a 3 credit, 120 hour program. It is offered fall, summer & spring semesters. A variety of course schedules are offered at most Madison College campuses. The Nursing Assistant Program prepares students for employment as nursing assistants. Students learn communication skills, basic nursing and personal care skills, client rights, and care of clients with dementias. A supervised clinical experience with direct client care is a major component of the course. This program is recognized by the Department of Health Services as a nurse aide training program. Upon successful completion of the program, students are eligible for certification testing (written & skills) for the Wisconsin Nurse Aide Registry. Certification is required for employment in nursing homes, hospitals, home health agencies, hospices and home for the developmentally disabled.

Unique Requirements for Admission

Compass Reading test scores – Students must recently have satisfactorily complete the Reading portion of the Compass (61 or higher) or Asset (35 or higher) or ACT (14 or higher) testing. If you have previously achieved an Associated Degree or higher with a college-level English class with a grade of C or better OR you have satisfactory UW placement testing your Reading test will be waived.

Health History form - Applicants will be required to complete a health history form including a tuberculosis skin test and/or chest x-ray, if indicated, and a blood specimen to determine immunity from measles, mumps and chicken pox. Evidence of current immunization for diphtheria and tetanus is also required.

Caregiver Background Check – All students must have a Caregiver Background Check and a Caregiver License Check completed in order to participate in the clinical portion of this course. Refer to Caregiver Background Check (CBC) on the Madison College Website.

Functional Abilities – All students are required to complete the FUNCTIONAL ABILITIES and MASTER SKILLS CHECKLIST regardless of disability, health status or religious beliefs. All students must complete the Health History form and should be reexamined at the student's expense should health status change during the course.

Nursing Assistant Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

First, Second or Summer Semester		Credits	Hrs/week Lec-Lab
30-543-300	Nursing Assistant*	3	10-5
	Total	**3**	

Notes: *This course will be offered several times during the fall, spring and summer semesters with a variety of class schedules. Contact the Nursing Assistant Program Coordinator, 258-2479, for more information.

A copy of the Functional Abilities necessary to successfully complete the program of study is available on the Nursing Assistant website.

Continuing Education

10-524-124 Restorative and Rehabilitation Therapy Aide……3……5-5

Program Courses

30-543-346 Nursing Assistant 3 credits

Prepares students for employment as nursing assistants. Students learn communication skills, basic nursing and personal care skills, clients rights and care of clients with dementias. A supervised clinical experience with direct client care is a major component of the course. Upon completion, the student is eligible to take the certification for the Wisconsin Nurse Aide Registry.

Career Potential:

- **CNA**
- **Nursing Assistant**
- **Nurse Aide**
- **Home Health Aide**
- **Psychiatric Aide**

Employment and Salary Information (Graduate Employment Report) PDF

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Nursing Completion LPN to ADN

Program Number: 10-543-1

Associate in Applied Science Degree

Nursing Program Cluster

Center of Health & Safety Education

Program offered at Madison, Reedsburg and Fort Campuses

For information call: (608) 246-6065 or (608) 246-6556 (800) 322-6282 ext. 6065 or 6556

About the Program

Accredited by the National League for Nursing Accrediting Commission (61 Broadway, NY, NY 10006, (212) 363-5555, ext. 153 or (800) 669-1656, ext. 153) and approved by the Wisconsin Department of Regulation and licensed by the Board of Nursing, this program prepares practitioners to function with judgment and technical competence while providing nursing care to patients of all ages. Upon completion, students are eligible to write the national exam for licensure as a registered nurse. Emphasis is on critical thinking, self-direction and independence. Helpful aptitudes and interests include respect for uniqueness of individuals; a willingness to follow procedures carefully, under-standing that errors may have serious consequences; and an ability to work and communicate with others, to be precise and exact work under pressure, and react quickly in an emergency.

Application Process

To apply to the program, students must submit an application & required documents. A complete application consists of the completed application form, $30 application fee (if not previously paid), $5 online processing fee per application, high school transcripts or GED/HSED test scores, college transcript(s) and COMPASS/ASSET test scores.

Unique Requirements for Admission

1) High school graduation or HSED or GED;
2) Satisfactory score on the ACT, SAT, COMPASS, ASSET or equivalent assessment test;
3) District #4 residency;
4) Submit copy of current LPN licensure
5) Course requirements of: **Chemistry**: Two semesters of high school chemistry with a lab component with a C or better each semester; or a four-credit college-level chemistry course with a lab component (10-806-134, General Chemistry or a higher level course), with a grade of C or better; **Algebra** competency demonstrated through satisfactory competency test scores or a college algebra course, with a grade of C or better; and **all general education "Pre-Nursing" courses listed to the right**;
6) Satisfactory competency scores on the Nursing TEAS testing and
7) Take the NLN challenge exam if it has been 10 or more years since completion of the Practical Nursing program.

NOTE: All of the above requirements must be satisfactorily completed at the time you submit your application materials. **This means you are actually ready to step into the program for the semester you apply for**.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

Pre-Nursing Courses:

		Credits	Lec-Lab
The following courses **must be completed** prior to application for the Nursing Completion LPN to A DN courses:			
30-543-300	Nursing Assistant	3	2.1
	Elective	5	2-0
10-801-195	Written Communication **OR**	3	3-0
20-801-201	English Comp 1	(3)	(3-0)
10-801-198	Speech **OR**	3	3-0
10-801-196	Oral/Interpersonal Communications **OR**	(3)	(3-0)
20-810-201	Fundamentals of Speech (Note: English 2 will no longer suffice.)		
20-809-203	Intro to Sociology **OR**	3	3-0
10-809-197	Contemporary American Society	(3)	(3-0)
20-806-207	Anatomy and Physiology 1	4	3-2
20-806-208	Anatomy and Physiology 2	4	3-2
20-806-273	Microbiology	4	3-2
20-809-231	Intro to Psychology	3	3-0
20-809-233	Developmental Psychology	3	3-0
	Total	**35**	

Practical Nursing and Licensure requirements:

Semester 1

31-543-301	Nursing Fundamentals	2	4-0
31-543-302	Nursing Skills	3	0-6
31-543-303	Nursing Pharmacology	2	4-0
31-543-304	Nursing: Intro to Clinical Practice	2	0-6

Semester 2

31-543-305	Nursing Health Alterations	3	6-0
31-543-306	Nursing Health Promotion	3	6-0
31-543-307	Nursing: Clinical Care Across the Lifespan	2	0-6
31-543-308	Nursing: Intro to Clinical Care Management	2	0-6
	Total	**19**	**& LPN Licensure**

Associate Degree Nursing 2nd year requirements:

Third Semester

10-543-164	Orientation to Associate Degree Nursing	1	1-0
10-543-109	Nursing Complex Health Alterations 1	3	3-0
10-543-110	Nursing Mental Health Community Concepts	2	2-0
10-543-111	Nursing Intermediate Clinical Practice	3	0-9
10-543-112	Nursing Advanced Skills	1	0-2
	Semester Total	**10**	

Fourth Semester

10-543-113	Nursing Complex Health Alterations 2	3	3-0
10-543-114	Nursing Management Concepts	2	2-0
10-543-115	Nursing Advanced Clinical Practice	3	0-9
10-543-116	Nursing Clinical Transition	2	0-6
	Semester Total	**10**	

Note: A copy of the Functional Abilities necessary to successfully complete the program of study is available on the web site.

Madison Area Technical College

Nursing Completion LPN to A DN

Program Number: 10-543-1

Program Requirements

1) Physical health exam within three months prior to beginning the first nursing course, current TB skin test and completion of all required immunizations and form;
2) Physical and mental abilities essential to successfully complete the program are referred to as Functional Abilities. A copy of these functions are available on the web site;
3) BID form for the Caregiver Background Checks (CBC). See the Madison College Website for Health, Human and Protective Services Policy; and
4) Current "Health Care Professional" CPR certification

Online Courses

All nursing theory courses are available online. Students who are enrolled in program courses may register for online courses. All program policies apply to online and face-to-face courses. Due to graduation verification and licensing paperwork, all fourth semester classes MUST be taken at Madison College.

Program Courses

10-543-109 Nursing Complex Health Alterations 1 3 credits
Complex Health Alterations 1 prepares the learner to expand knowledge from previous courses in caring for clients with alterations in musculoskeletal, cardiovascular, respiratory, endocrine and hematologic systems as well as clients with fluid/ electrolyte and acid-base imbalance, and alterations in comfort.

10-543-110 Nursing Mental Health Community Concepts 2 credits
This course will cover topics related to the delivery of community and mental health care. Specific health needs of individuals, families, and groups will be addressed. Attention will be given to diverse and at-risk populations. Mental health concepts will concentrate on adaptive/maladaptive behaviors and specific mental health disorders. Community resources will be examined in relation to specific types of support offered to racial, ethnic, economically diverse individuals and groups.

10-543-111 Nursing Intermediate Clinical Practice 3 credits
This intermediate level clinical course develops the RN role when working with clients with complex health care needs. A focus of the course is developing skills needed for managing multiple clients and priorities. Using the nursing process, students will gain experience in adapting nursing practice to meet the needs of clients with diverse needs and backgrounds.

10-543-112 Nursing Advanced Skills 1 credit
This course focuses on the development of advances clinical skills. Content includes advanced IV skills, blood product administration, chest tube systems, basic EKG interpretation and nasogastric/feeding tube insertion.

10-543-113 Nursing Complex Health Alterations 2 3 credits
This course prepares the learner to expand knowledge and skills from previous courses in caring for clients with alterations in the immune, neuro-sensory, musculoskeletal, gastrointestinal, hepatobiliary, renal/urinary and the reproductive systems. The learner will also focus on management of care for clients with high risk perinatal conditions, high risk newborns and the ill child. Synthesis and application of previously learned concepts will be evident in the management of clients with critical/life threatening situations.

10-543-114 Nursing Management Concepts 2 credits
This advanced clinical course covers nursing management and professional issues related to the role of the RN emphasis is paced on preparing for the RN practice.

10-543-115 Nursing Advanced Clinical Practice 3 credits
This advanced clinical course requires the student to integrate concepts from all previous courses in the management of groups of clients facing complex health alterations. Students will have the opportunity to further develop critical thinking skills using the nursing process in making clinical decisions. Continuity of care through interdisciplinary collaboration is emphasized.

10-543-116 Nursing Clinical Transition 2 credits
This clinical experience integrates all knowledge learned in the previous course in transitioning to the role of the graduate nurse. The course promotes relatively independent clinical decisions, delegations, and works collaboratively with others to achieve client and organizational outcomes.

10-543-164 Orientation to Associate Degree Nursing 1 credit
Introduction to the Associate Degree Nursing Program for licensed practical nurses. Prerequisite: Admission to the ADN program and permission of the program director.

Career Potential:

- **Registered Nurse (RN)** Board Exam (NCLEX), graduates may work as registered nurses in a variety of healthcare settings including clinics, hospitals, extended-care facilities, doctor's offices, home health agencies and selected industrial and business settings.

With additional education graduates may:

- **Attain a Bachelors of Science in Nursing Degree**
- **Attain a Master of Science in Nursing Degree**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Practical Nursing

Effective: 2010-2011

Program Number: 31-543-1

One-Year Technical Diploma

Nursing Program Cluster

Center of Health & Safety Education

Program offered at the following campuses:

- Madison (both semesters),
- Fort Atkinson (fall semester) and
- Reedsburg (spring semester).

For information call: (608) 246-6065 or (800) 322-6282 Ext. 6065

About the Program

The Practical Nursing program enables the student to acquire the knowledge, understanding, skills and attitudes necessary to become a qualified, competent practical nurse. The practical nurse, under the general or direct supervision of a registered nurse, physician, podiatrist, dentist or optometrist, is prepared to assume responsibility for nursing in those situations relatively free of complexity and to assist in more complex nursing care situations.

The program includes lectures, demonstrations and supervised practice at a variety of sites including hospitals, nursing homes, home health and family practice or community care settings. The program is approved by the Wisconsin State Board of Nursing. A student must have a grade of C or better to pass a nursing course. The graduate is eligible to write the national licensing exam (NCLEX-PN). Successful completion of the examination, as defined by the Board of Nursing, leads to licensure in the State of Wisconsin.

Application Process

To apply to the program, students must submit an application. A completed packet consists of the completed application form, $30 application fee (if not previously paid), $5.00 fee per online application, high school transcripts or GED/HSED test scores, college transcript(s) and COMPASS/ASSET test scores.

Unique Requirements for Admission

Must be satisfactorily completed or attending the courses when the application is submitted:

1. High school graduation, HSED or GED;
2. Assessment Testing (One of the following):

Test	Minimum Test Scores
COMPASS	Reading 80, Writing 70, Pre-Algebra 55, E-Write 6
ASSET	Reading 40, Writing 40, Numerical 40

3. Math competency (within the last two years) demonstrated through satisfactory competency testing scores OR one semester of college-level math with a grad of C or better.
4. Reading competency demonstrated through satisfactory competency testing scores OR one semester of college-level Writing/English with a grad of C or better.
5. Writing competency demonstrated through satisfactory competency testing scores OR one semester of college-level Reading/English with a grad of C or better.
6. Science: Two semesters of high school science, with a C or better each semester OR one semester of college-level science course (Body Structure & Function 31-543-335 or 10-501-153 or higher level course) with a grade of C or better.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program on or after June 1, 2010. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

Pre-Core Nursing Courses:		Credits	Hrs/week Lec-Lab
The following courses **must be completed prior to acceptance** in core nursing courses.			
30-543-300	Nursing Assistant	3	3-0
31-543-356	Growth and Development	2	4-0
31-543-335	Body Structure and Function **OR**	2	4-0
10-501-153	Body Structure and Function	(3)	3-0
	Semester Total	**7**	**8**

Core Nursing Courses:			
Semester 1			
31-543-301	Nursing Fundamentals	2	4-0
31-543-302	Nursing Skills	3	0-6
31-543-303	Nursing Pharmacology	2	4-0
31-543-304	Nursing: Intro to Clinical Practice	2	0-6
20-801-201	English 1* **OR**	3	3-0
10-801-195	Written Communication*	(3)	(3-0)
	Semester Total	**12**	**23**
Semester 2			
31-543-305	Nursing Health Alterations	3	6-0
31-543-306	Nursing Health Promotion	3	6-0
31-543-307	Nursing: Clinical Care Across the Lifespan	2	0-6
31-543-308	Nursing: Intro to Clinical Care Management	2	0-6
20-810-201	Fundamentals of Speech* **OR**	3	3-0
10-801-196	Oral/Interpersonal Communication*	(3)	(3-0)
	Semester Total	**13**	**27**

*Courses may be taken prior to acceptance into the program. Students are strongly encouraged to complete the general education requirements prior to starting the core Nursing courses. Core Nursing courses may not be completed prior to acceptance into the program.

Note: A hard copy of Functional Abilities for nursing programs is available on the Admission Tab off the Program's web page.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Additional program requirements upon acceptance: Caregiver Background Check (CBC), physical exam and completed Health History Form, copy of your current "Health Care Professional " CPR certification, Functional Abilities reviewed for nursing programs, and completion of all required courses with a grade of C or better. All Health Occupations students must have a completed Health History Form on file prior to clinical affiliation. Under no circumstances are students assigned to the clinical areas until these requirements are met.

Licensed Practical Nurses seeking to complete their Associate Degree to become an RN: Please obtain the Nursing Completion LPN to A DN information for details. Practical Nursing students planning to continue to the Associate Degree Nursing (ADN) program can make the following adjustments to the required curriculum: Intro to Psychology & Developmental Psychology instead of Growth & Development; and Anatomy & Physiology I & II instead of Body Structure & Function (10-501-153 can be used as an elective of the ADN program).

Program Courses

Pre-Core Nursing Courses

31-543-335 Body Structure and Function 2 credits
Provides insight into basic human body structure and functions, including fundamentals needed to understand and evaluate health practices related to each system and the body as a whole. Prerequisite: one year each of high school math and science with a grade of C or better in each course, each semester.

31-543-356 Growth and Development 2 credits
Studies growth and development from conception through the older adult, based on Erickson's conceptualization of the developmental process through the entire life cycle. Implications for nursing practice in caring for middle and older age individuals in a variety of settings are explored. Prerequisites: one year each of high school math and science with a grade of C or better in each course, each semester.

Core Nursing Courses

31-543-301 Nursing Fundamentals 2 credits
This course focuses on basic nursing concepts that the beginning nurse will need to provide care to diverse patient populations. Current and historical issues impacting nursing will be explored within the scope of nursing practice. The nursing process will be introduced as a framework for organizing the care of patients with alterations in cognition, elimination, comfort, grief/loss, mobility, integument and fluid/electrolyte balance.

31-543-302 Nursing Skills 3 credits
This course focuses on development of clinical skills and physical assessment across the lifespan. Content includes mathematic calculations and conversions related to clinical skills, blood pressure assessment, aseptic technique, wound care, oxygen administration, tracheostomy care, suctioning, management of enteral tubes, basic medication administration, glucose testing, enemas, ostomy care and catheterization. In addition the course includes techniques related to obtaining a health history and basic physical assessment skills using a body systems approach.

31-543-303 Nursing Pharmacology 2 credits
This course introduces the principles of pharmacology, including drug classifications and their effects on the body. Emphasis is on the use of the components of the nursing process when administering medications.

31-543-304 Nursing: Introduction to Clinical Practice 2 credits
This introductory clinical course emphasizes basic nursing skills and application of the nursing process in meeting the needs of diverse clients. Emphasis is placed on performing basic nursing skills, the formation of nurse-client relationships, communication, data collection, documentation, and medication administration.

31-543-305 Nursing Health Alterations 3 credits
This course elaborates upon the basic concepts of health and illness as presented in Nursing Fundamentals. It applies theories of nursing in the care of clients through the lifespan, utilizing problem solving and critical thinking. This course will provide an opportunity to study conditions affecting different body systems and apply therapeutic nursing interventions. It will also introduce concepts of leadership, team building and scope of practice.

31-543-306 Nursing Health Promotion 3 credits
This course will cover topics related to health promotion in the context of the family. We will cover nursing care of the developing family, which includes reproductive issues, pregnancy, labor and delivery, post-partum, the newborn, and the child. Recognizing the spectrum of healthy families we will discern patterns associated with adaptive and maladaptive behaviors applying mental health principles. An emphasis is placed on teaching and supporting healthy lifestyles choices. Nutrition, exercise, stress management, empowerment and risk reduction practices are highlighted. Study of the family will cover dynamics, functions, discipline styles and stages of development.

31-543-307 Nursing: Clinical Care Across the Lifespan 2 credits
This clinical experience applies nursing concepts and therapeutic interventions to clients across the lifespan. It also provides an introduction to concepts of teaching and learning. Extending care to include the family is emphasized.

31-543-308 Nursing: Introduction to Clinical Care Management 2 credits
This clinical experience applies nursing concepts and therapeutic nursing interventions to groups of clients. It also provides an introduction to leadership, management and team building.

Career Potential:

- **Licensed Practical Nurse (LPN)**
  After passing the State Board Exam (NCLEX-PN), graduates may work as licensed practical nurses in clinics, a variety of health care settings including home health agencies, hospitals, the Armed Services, extended care facilities and selected industrial and business settings.
- **Home Health and Pharmacy Salesperson**
- **Insurance Claims Monitor**

Graduates can also qualify for advanced academic standing in the Associate Degree Nursing Program.

With additional education LPNs can go on to become registered nurses (RNs), and then find employment as:

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Clinical Laboratory Technician

Program Number: 10-513-1

Associate in Applied Science Degree

Health-Related Professions Cluster

Center of Health and Safety Education

Program offered at Madison Campuses

For information call: (608) 246-6065, (608) 246-6459 or (800) 322-6282 Ext. 6065 or 6459

About the Program

This program is approved by the National Accrediting Agency for Clinical Laboratory Science (5600 N River Road, Suite 720, Rosemont, IL 60018; 773-714-8880). A combination of fundamental laboratory techniques and clinical experience prepares graduates for work in laboratories serving the health care sector. The final semester of training is in laboratories in Madison and throughout Wisconsin. Students should anticipate the possibility of traveling or relocating to complete the clinical rotation. A list of laboratories used is available in the program director's office. Students are admitted for the fall semester.

Graduates of the program qualify for the American Society of Clinical Pathologists Board Certification exam for medical laboratory technicians, under the direction of the American Society of Clinical Pathologists and the American Society for Clinical Laboratory Science.

Unique Requirements for Admission

1) High school graduation, HSED or GED with a C or better average;
2) High school courses with C or better grades—three years of English, one year of chemistry, one year of general biology, two years of algebra or one year of algebra and one year of geometry (or one semester of each course at the college level with a grade of C or better); and
3) Satisfactory score on the COMPASS or equivalent assessment.

Program Requirements

1) Caregiver Background Check (CBC) and 2) Physical exam and completed Health History Form on file prior to beginning the first semester clinical rotation.

Planning to pursue a four-year Clinical Laboratory Scientist degree?

Consider the following course substitutions: 20-806-207 and 20-806-208 (Anatomy and Physiology 1 and 2) for 20-806-206; 20-806-209 and 20-806-210 (College Chemistry 1 and 2) for 20-806-201. Both 20-806-208 and 20-806-210 can be used to meet elective requirements.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-513-110	Basic Lab Skills	1	2
10-513-111	Phlebotomy	2	3
10-513-113	QA Lab Math	1	2
10-513-114	Urinalysis	2	3
20-806-206	General Anatomy and Physiology*	4	5
20-806-201	Gen., Organic & Biological Chemistry*	5	4-2
10-801-195	Written Communication* **OR**	3	3
20-801-201	English Composition 1*	(3)	(3)
	Semester Total	**18**	
Second Semester			
10-513-115	Basic Immunology Concepts	2	3
10-513-120	Basic Hematology	3	4
10-513-121	Coagulation	1	2
10-513-122	Introduction to Blood Bank	2	3
10-513-123	Advanced Blood Bank	2	3
10-801-198	Speech* **OR**	3	3
10-801-196	Oral/Interpersonal Communications* **OR**	(3)	(3)
20-810-201	Fundamentals of Speech*	(3)	(3)
20-806-273	Microbiology*	4	3-2
	Semester Total	**17**	
Summer Session			
10-809-197	Contemporary American Society* **OR**	3	3
20-809-203	Introduction to Sociology*	(3)	(3)
10-809-199	Psychology of Human Relations* **OR**	3	3
20-809-231	Introduction to Psychology*	(3)	(3)
	Semester Total	**6**	
SECOND YEAR			
First Semester			
10-513-130	Advanced Hematology	2	3
10-513-131	Clinical Chemistry 1	3	4
10-513-132	Clinical Chemistry 2	2	3
10-513-133	Clinical Microbiology	4	7
10-513-180	Body Fluids	1	1
	Elective	2	2
	Semester Total	**14**	
Second Semester			
10-513-140	Advanced Microbiology	2	2
10-513-141	Preclinical Experience	2	0-2
10-513-151	Clinical Experience 1	3	0-20
10-513-152	Clinical Experience 2	4	0-20
10-513-153	Clinical Portfolio	1	0-1
	Semester Totals	**12**	

Notes: *Courses which can be taken prior to entering the program may be taken at college transfer level. Science-based courses (20-806-201, 20-806-273 and 20-806-206) must have been taken within five years prior to program admission to receive credit. **Elective credits may be any combination of associate degree level or college transfer courses and may be taken prior to program admission. 1) A copy of the essential functions necessary to successfully complete the program of study is available on the program's web site. 2) All program students must meet the health requirements specified on the Madison College Health History Form prior to enrolling in program courses.

Program Courses

10-513-110 Basic Lab Skills **1 credit**
Explores health career options and fundamental principles and procedures of the clinical laboratory. Incorporates medical terminology, basic laboratory equipment, safety and infection control procedures, and simple laboratory tests. Prerequisites: successful completion of the following high school courses with a grade of C or better: three years of English, one year of chemistry, one year of general biology, two years of algebra or one year algebra and one year of geometry; a satisfactory score on the COMPASS test or equivalent substitute and acceptance into Clinical Lab Tech program.

10-513-111 Phlebotomy **2 credits**
Provides opportunities to perform routine venipuncture, capillary puncture, and special collection procedures. Corequisite: 10-513-110.

10-513-113 QA Lab Math **1 credit**
Focuses on mathematical calculations used in the laboratory. Explores concepts of quality control and quality assurance, regulatory compliance requirements, and certification and continuing education programs. Prerequisites: successful completion of the following high school courses with a grade of C or better: three years of English, one year of chemistry, one year of general biology, two years of algebra or one year algebra and one year of geometry; a satisfactory score on the COMPASS test or equivalent substitute and acceptance into Clinical Lab Tech program. Co-requisites: 10-513-110 and 10-513-111.

10-513-114 Urinalysis **2 credits**
Perform physical, chemical and microscopic analysis of urine. Explore renal physiology and correlate urinalysis results with clinical conditions. Corequisites: 10-513-110, 10-513-111 and 10-513-113.

10-513-115 Basic Immunology Concepts **2 credits**
Provides an overview of the immune system including testing methods for diagnosis of immune system disorders and viral and bacterial infections. Prerequisites: 10-513-110, 10-513-111, 10-513-113 and 10-513-114. Corequisites: 10-513-120, 10-513-121, 10-513-122, 10-513-123 and 20-806-273.

10-513-120 Basic Hematology **3 credits**
Covers theory and principles of blood cell production and function. Introduces basic practices and procedures in the hematology laboratory. Prerequisites: 10-513-110, 10-513-111, 10-513-113 and 10-513-114. Corequisites: 10-513-115, 10-513-121, 10-513-122, 10-513-123 and 20-806-273.

10-513-121 Coagulation **1 credit**
Introduces theory and principles of coagulation and explores mechanisms involved in coagulation disorders. Emphasis is placed on laboratory techniques used to diagnose disease and monitor treatment. Prerequisites: 10-513-110, 10-513-111, 10-513-113 and 10-513-114. Corequisites: 10-513-115, 10-513-120, 10-513-122, 10-513-123 and 20-806-273.

10-513-122 Introduction to Blood Bank **2 credits**
Focuses on basic blood banking concepts and procedures including blood typing and compatibility testing. Prerequisites: 10-513-110, 10-513-111, 10-513-113 and 10-513-114. Corequisites: 10-513-115, 10-513-120, 10-513-123 and 20-806-273.

10-513-123 Advanced Blood Bank **2 credits**
Covers advanced blood banking concepts and procedures including workups for adverse reaction to transfusions and disease states. Prerequisites: 10-513-110, 10-513-111, 10-513-113 and 10-513-114. Corequisites: 10-513-115, 10-513-120, 10-513-122 and 20-806-273.

10-513-130 Advanced Hematology **2 credits**
Explores mechanisms involved in the development of hematologic disorders. Emphasis is placed on laboratory techniques used to diagnose disorders and monitor treatment. Prerequisites: 10-513-115, 10-513-120, 10-513-121, 10-513-122, 10-513-123 and 20-806-273. Corequisites: 10-513-131, 10-513-132 and 10-153-133.

10-513-131 Clinical Chemistry 1 **3 credits**
Introduces techniques and procedures for routine analysis using photometric, potentiometric and separation techniques. Covers pathophysiology and methodologies for carbohydrate, lipid, protein, renal function, and blood gas analysis. Prerequisites: 10-513-115, 10-513-120, 10-513-121, 10-513-122, 10-513-123 and 20-806-273. Corequisites: 10-513-130, 10-513-132 and 10-513-133.

10-513-132 Clinical Chemistry 2 **2 credits**
Covers pathophysiology and methodologies for hepatic, bone, cardiac markers, tumor markers, endocrine function, fetal function, miscellaneous body fluids, and toxicology. Includes techniques and procedures for analysis using sophisticated laboratory instrumentation. Prerequisites: 10-513-115, 10-513-120, 10-513-121, 10-513-122, 10-513-123 and 20-806-273. Corequisites: 10-513-130, 10-513-131 and 10-513-133.

10-513-133 Clinical Microbiology **4 credits**
Presents the clinical importance of infectious diseases with emphasis on the appropriate collection, handling, and identification of clinically relevant bacteria. Disease states, modes of transmission and methods of prevention and control, including antibiotic susceptibility testing, will be discussed. Prerequisites: 10-513-115, 10-513-120, 10-513-121, 10-513-122, 10-513-123 and 20-806-273. Corequisites: 10-513-130, 10-513-131 and 10-513-132.

10-513-140 Advanced Microbiology **2 credits**
Introduces laboratory methods used in the isolation and initial identification of pathologic microorganisms. Prerequisite: 10-513-133.

10-513-141 Pre-Clinical Experience **2 credits**
Provides opportunities to practice the principles and procedures of laboratory medicine in a clinical laboratory setting. Clinical content is reviewed and students run a mock-clinical laboratory from specimen acquisition to result reporting. Resume writing and interviewing techniques are also discussed.
Prerequisites: satisfactory completion of 1st – 3rd semester Clinical Laboratory Technician program courses and concurrent enrollment in 10-513-140 and 10-513-151.

10-513-151 Clinical Experience 1 **3 credits**
Provides opportunities to practice the principles and procedures of laboratory medicine on-site, in a clinical laboratory facility. Students will practice on state of the art instrumentation in the areas of clinical chemistry and hematology, including urinalysis and coagulation. Prerequisite: satisfactory completion of on campus pre-clinical experience. Prerequisites: Satisfactory completion of all courses and co-requisites of 10-513-141 and 10-513-152.

10-513-152 Clinical Experience 2 **4 credits**
Provides opportunities to practice the principles and procedures of laboratory medicine on-site, in a clinical laboratory facility. Students will practice in the areas of blood banking and microbiology, including serology and immunological procedures. Students also complete a case study for presentation. Prerequisites: Satisfactory completion of pre-clinical experience 10-513-141 and 10-513-151.

10-513-153 Clinical Portfolio **1 credits**
Students prepare a portfolio of professional experiences, assessments and evaluations, clinical reports, class project summaries, a log of community service or professional activities performed while in the CLT program and resume for CLT employment. This course is graded pass/fail. Prerequisites: Satisfactory completion of all courses and 10-513-151 and 10-513-152.

10-513-180 Body Fluids **1 credits**
Covers principles and procedures related to laboratory analysis of body fluids, including serous fluids, cerebral spinal fluid, synovial fluid, and bronchoalveolar lavage (BAL) fluid. The major emphasis of the course is hematologic analysis, including cell counts and differentials. The completion of case studies allows the student to correlate laboratory results with disease states. Prerequisite: of 10-513-120

Career Potential:

- **Clinical Laboratory Technician**
  Performs routine laboratory tests on blood, urine, and body fluids to help in the diagnosis and treatment of disease and injury in a hospital, clinic laboratory, or reference laboratory.
- **Laboratory Technician/Research Assistant**
  Performs routine and special laboratory tests in a variety of laboratory settings, including research, industrial, environmental and food science labs.

With additional training and/or work experience, graduates may find employment as:

- **Clinical Laboratory Scientist (Medical Technologist)**
- **Medical Microbiologist**
- **Laboratory Computer Sales or Training Specialist**
- **Laboratory Sales/Product Representative**
- **Instrument Service Technician**
- **Quality Control Officer**
- **Biomedical Instrument Specialist**
- **Clinical Research Associate**
- **Safety Officer**
- **Laboratory Science Instructor/Trainer**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev: 03/10

Madison Area Technical College

Effective: 2010-2011

Clinical Ophthalmic Assistant

Program Number: 90-516-1

Certificate

Health-Related Professions Program Cluster

Center for Health & Safety Education

Program offered at Madison Campus

For information call: (608) 246-6065 or (608) 246-6472
(800) 322-6282 Ext. 6065 or 6472

About the Program

The Ophthalmic Assistant certificate expands the curriculum of the Optometric Technician Program. The Ophthalmic Assistant works under the supervision of an ophthalmologist. The curriculum of the certificate includes:

- Anatomical and functional measurements of the eye such as corneal thickness (pachymetry) and length of the eye (A-scan).
- Assisting in minor surgical procedures
- Caring for, maintaining, and sterilizing surgical instruments.
- Scribing for the doctor during eye examinations.
- Complex medical case history taking.
- Affect of systemic diseases on the eye.

An important aspect of the certificate is the clinical experience given to the student. The students will refine the skills learned by working directly with doctors and patients during a eight week summer clinical session.

MATC is seeking accreditation for this certificate from the Joint Commission on Allied Health Personnel in Ophthalmology.

Unique Requirements for Admission

1) High school graduate, HSED or GED; 2) satisfactory scores on the COMPASS or equivalent assessment test.

Program Requirements

1) Physical exam and completed History Form on file prior to beginning the clinical affiliation; and 2) written proof of Adult and Child CPR certification prior to beginning the clinical affiliation.

Curriculum

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
31-516-325	Optical Dispensing 1	3	3-2
31-516-301	Ophthalmic Pre-Testing	3	3-3
31-516-305	Basic Optical Concepts	3	3-2
31-516-315	Ocular Anatomy	2	3-1
31-543-335	Body Structure** OR	2	3-0
10-501-153	Body Structure**	(3)	(3-0)
31-516-339	Human Relations OR	1	2-0
10-809-199	Psychology of Human Relations**	(3)	(3-0)
	Semester Total	**14**	
Second Semester			
31-516-327	Clinical Ophthalmic Procedures	2	1-2
31-516-326	Optical Dispensing 2	2	2-2
31-516-330	Contact Lenses	3	3-2
31-516-335	Ophthalmic Specialty Testing	3	3-3
31-516-340	Patient Relations and Practice Management	2	3-0
31-516-345	Preclinical	2	0-4
31-516-350	Clinical Experience*	3	0-40
	Semester Total	**17**	
Summer Session			
31-516-351	Clinical Experience II	3	0-270
	Semester Total	**3**	

Courses in bold above (31-516-327 & 31-516-351) identify the two additional courses that are required in order to earn the certificate as a Clinical Ophthalmic Assistant.

* This portion of the Clinical experience lasts six weeks and begins on week 15 of the second semester of study.

** Class may be taken prior to acceptance into program.

Note: A copy of the essential functions necessary to successfully complete the program of study is available upon request from the division office.

MADISON AREA | TECHNICAL COLLEGE

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Madison Area Technical College

Clinical Ophthalmic Assistant

Program Number: 90-516-1

Program Courses

31-516-301 Ophthalmic Pre-Testing 3 credits
Covers the history of optometry, relationships between optometry, ophthalmology and opticianry and various paraprofessional careers in vision care. The course involves the study of and practical experience in patient pre-testing such as case history, visual acuity, color vision, pupil evaluation and depth perception as well as the specialized testing procedures such as keratometry and blood pressure.

31-516-305 Basic Optical Concepts 3 credits
Covers the properties of light and the function of a lens in vision correction. Included is a review of basic math needed in vision care and the physiological aspects of vision. This course begins the study of the neutralization and verification of spectacle lens powers, to include spherical, cylindrical and prism lenses.

31-516-315 Ocular Anatomy 2 credits
Familiarizes the optometric technician with the form and function of the human eye. The foundation of the lecture material is the anatomy of the eye, but we will discuss the physiology and function of the eye as much as possible. We will also discuss the actions and uses of diagnostic pharmaceutical agents, as their function is based on interference with normal ocular physiology. This course also covers optometric terminology as well as prescription translation.

31-516-325 Optical Dispensing 1 3 credits
Covers frame definition, parts and types of frames, measurement of frames and lenses, alignment of frames, inserting and removing lenses, introduction to dispensing of eyewear and frame repairs. This is a hybrid course that meets weekly for 2 hours classroom, 2 hours lab and 1 hour online.

31-516-326 Optical Dispensing 2 2 credits
This course assists the student in developing a mastery of the alignment and adjustment of eyewear. It also covers the various lens materials, multifocal styles and lens tints. Prerequisites: 31-516-325 and 31-516-305.

31-516-327 Clinical Ophthalmic Procedures 2 credits
This course prepares the technician to assist the doctor in advanced office techniques in the area of ultrasound, in-office surgical procedures, case history and scribing. Students will also study various systemic diseases and their affect on the eye. The performance of various skills is emphasized in the laboratory sessions. Elective Course for the Optometric Technician Program, required for the Clinical Ophthalmic Assistant Certificate. Prerequisites: 31-516-315, 31-516-301, 31-516-305 and 31-543-355 or 10-501-153.

31-516-330 Contact Lenses 3 credits
Gives the student in-depth exposure to the technical aspects of clinical contact lens practice. Lecture and laboratory experiences emphasize lens verification, patient education and evaluation. Prerequisites: 31-516-301, 31-516-305 and 31-516-315.

31-516-335 Ophthalmic Specialty Testing 3 credits
Provides the student experience and knowledge in areas of special vision care procedures: subjective refraction, visual field testing, slit lamp, Goldmann and non-contact tonometry, basic concepts of orthoptics and the treatment of eye diseases including instillation of eye medications and eye patching. Patient instruction and assistance are emphasized in laboratory sessions. Prerequisites: 31-516-301, 31-516-305 and 31-516-315.

31-516-339 Human Relations 1 credit
Introduces students to their personal and vocational responsibilities as an optometric technician. The development of communication skills one needs as an optometric technician are introduced. The ethical and legal responsibilities of an optometric technician are defined. Time management techniques will be presented. Basic concepts of stress and how it affects behavior, and stress management are discussed. The course also covers writing a job application letter and resume as well as interview techniques.
This is a hybrid course that meets weekly for 1 hour classroom and 1 hour online.

31-516-340 Patient Relations and Practice Management 2 credits
Provides a study of front office management techniques including telephone and appointment book management, filing, recall systems, bookkeeping and insurance claim processing. This is a hybrid course that meets weekly for 2 hours classroom and 1 hour online.

31-516-345 Preclinical 2 credits
Prepares students for clinical affiliation by having them complete vision screenings on patients from the college. Class discussions are held analyzing the results of the screening as well as the students' performance. Prerequisites: 31-516-301, 31-516-305 and enrollment in 31-516-335.

31-516-350 Clinical Experience 3 credits
Students participate 40 hours per week for six weeks of assigned clinical experience in an optometric or clinic setting. The student is expected to achieve specific educational objectives determined for this experience. Prerequisite: satisfactory completion of all first-semester courses plus enrollment in second-semester courses.

31-516-351 Clinical Experience II 3 credits
Students participate 34 hours per week for eight weeks of assigned clinical experience in an ophthalmic clinic setting. The student is expected to achieve specific educational objectives determined for this experience. Prerequisite: satisfactory completion of all courses (first and second semester).

Required Related Course

31-543-335	Body Structure & Function	2 credits
10-501-153	Body structure & Function	3 credits

Career Potential:

- **Ophthalmic Assistant**
- **Optometric Technician**
  Person assists an optometrist or ophthalmologist in the delivery of eye care. Duties may include preliminary testing procedures, dispensing of glasses and contact lenses and front office management.
- **Dispensing Optician**
  This person specializes in the fitting and dispensing of eyewear. They may be employed by an optometrist, ophthalmologist or clinic, or own their own optical dispensary.
- **Contact Lens Technician**
  Duties may include the ordering, verification and dispensing of contact lenses. The contact lens technician may also assist the doctor in chairside techniques of fitting contact lenses.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Dental Assistant

Program Number: 30-508-2

Less-Than-One-Year Diploma

Health-Related Professions Program Cluster

Center of Health & Safety Education

Program offered at Madison Campuses

For information call: (608) 246-6065, (608) 243-4221 or (800) 322-6282 Ext. 6065 or 4221

About the Program

The Dental Assistant program prepares graduates to work with dentists as they examine and treat patients. Dental Assistants with documented skills also may carry out a variety of laboratory, clinical and office duties. Graduates receive a technical diploma. Most dental assistants work in general or specialized dental offices, either for individual dentists or for groups of dentists. The dental assistant also may find employment with federal agencies such as the Veterans' Administration, United States Public Health Services, the Armed Forces, or a state, county or city health facility.

Dental Assistant is a one-semester program. Students are accepted for both fall and spring semesters.

Unique Requirements for Admission

1) High School graduation, HSED or GED;
2) One unit of science and math, with a grade of C or better;
3) Satisfactory score on COMPASS, ASSET or equivalent assessment test.
4) Complete the online learning readiness self-assessment.

Program Requirements

1) Physical exam and completed Health History Form on file prior to beginning program.
2) Hands-on CPR certification before beginning Dental Assistant program (two-person CPR, Infant through Adult with AED).

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

First Semester		Credits	Hrs/week Lec-Lab
10-508-101	Dental Health Safety **	1	0-1
31-508-302	Dental Chairside	5	3-5
10-508-113	Dental Materials **	2	1-2
31-508-304	Dental & General Anatomy	2	3-0
10-508-103	Dental Radiography **	2	2-2
31-508-306	Dental Assistant Clinical	3	171 hrs
31-508-307	Dental Assistant Professionalism	1	2-0
	Total	**16**	

Note: A copy of the essential functions necessary to successfully complete the program of study is available upon request from the division office.

** Classes that transfer on to the Dental Hygienist program.

Program Courses

10-508-101 Dental Health Safety 1 credit
Prepares dental auxiliary students to respond proactively to dental emergencies, control infection, prevent disease, adhere to OSHA Standards and safely manage hazardous materials. Students also take patient vital signs and collect patient medical/dental histories. CPR certification is a prerequisite; students will be required to show proof of certification before beginning the course. Prerequisites: Students must be currently recognized/ certified in basic life support procedures for health care provider, including cardiopulmonary resuscitation prior to enrollment in this course.

10-508-113 Dental Materials 2 credits
Prepares dental auxiliary students to handle and prepare dental materials such as liners, bases, cements, amalgam, resin restorative materials, gypsum products and impression materials. Students also learn to take alginate impressions and clean removable appliances. Offered as a Hybrid class. Prerequisites: completion of, or concurrent enrollment in Dental Health Safety, 10-508-101.

31-508-302 Dental Chairside 5 credits
Prepares dental assistant students to chart oral cavity structures, dental pathology and restorations and to assist a dentist with basic dental procedures including examinations, pain control, amalgam restoration and cosmetic restoration. Student will also develop the ability to educate patients about preventive dentistry, brushing and flossing techniques, and dental procedures, using lay terminology. Throughout the course, students will apply decoding strategies to the correct use and interpretation of dental terminology. Prerequisites: completion of, or concurrent enrollment in, Dental Health Safety, 10-508-101.

31-508-304 Dental & General Anatomy 2 credits
Prepares dental assistant students to apply fundamentals of general and dental anatomy to informed decision making and to professional communication with colleagues and patients. Offered as an online class. Prerequisites: acceptance into the Dental Assistant program.

10-508-103 Dental Radiography 2 credits
Prepares dental auxiliary students to operate x-ray units and expose bitewing, periapical, extra oral, and occlusal radiographs. Emphasis is placed on protection against x-ray hazards. Students also process, mount, and evaluate radiographs for diagnostic value. In this course students demonstrate competency on a manikin. In addition, students expose bitewing radiographs on a peer, role-play patient. Students gain further experience in exposing radiographs on patients in the clinical portion of their program. This course also provides the background in radiographic theory required for students to make informed decisions and adjustments. Prerequisites: completion of, or concurrent enrollment in, Dental Health Safety, 10-508-101, and Dental and General Anatomy, 31-508-304.

31-508-306 Dental Assistant Clinical 3 credits
Students apply skills developed in Dental and General Anatomy, Dental Health Safety, Dental Chairside, Dental Materials, Dental Radiography and Professionalism in a clinical setting with patients. Emphasizes integration of core abilities and basic occupational skills. Prerequisites: completion of or concurrent enrollment in, Dental Health Safety, 10-508-101, Dental and General Anatomy, 31-508-304, Dental Chairside, 31-508-302, Dental Materials, 10-508-113, Applied Dental Radiography, 31-508-305 or 10-508-103 Dental Radiography and Dental Assistant Professionalism, 31-508-307.

31-508-307 Dental Assistant Professionalism 1 credit
Prepares dental assistant students for professional success in a dental practice or another dental health care environment. Students develop professional appearance and image. More importantly, they learn to work within ethical guidelines and legal frameworks. In preparation for entering the work force, dental assistants customize or develop their portfolios and lay out an on-going professional development plan. Offered as an online class. Prerequisite: acceptance into the Dental Assistant program.

Career Potential:

- **Chairside Assistants**
  Work directly with the dentist in the treatment area.
- **Laboratory Assistants**
  Perform laboratory functions as directed by the dentist.
- **Receptionists/Office Assistants**
  Responsible for the operation of the business office.
- **Claims Approvers**
  Work for an insurance company approving dental insurance claims.

With additional education and/or work experience, graduates may find employment as:

- **Dental Treatment Coordinator**
  Are responsible for the operation of the practice.
- **Dental Laboratory Technicians**
  Perform the mechanical, technically skilled tasks specified by the written prescription of the dentist.
- **Dental Sales Representative**
  Work for a dental supply business, which provides products and services to dental offices.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/10

Dental Hygienist

Program Number: 10-508-1

Associate in Applied Science Degree

Health-Related Professions Program Cluster

Center of Health & Safety Education

Program offered at Madison Campuses

For information call: (608) 246-6065, (608) 258-2470 or (800) 322-6282 Ext. 6065 or 2470

About the Program

Under the supervision of a dentist, a dental hygienist inspects the mouth, administers local anesthesia and chemotherapeutic agents, removes stains and deposits from teeth, applies preventive agents, prepares clinical and diagnostic tests, completes dental x-rays and performs many other services related to mouth care. Dental hygienists counsel patients about preventive measures such as nutrition, oral hygiene and dental care.

Dental hygienist graduates are required to successfully complete comprehensive written and clinical examinations given under the direction of the State Dentistry Examining Board, the American Dental Association's Joint Commission on National Dental Examinations and a Regional Dental Testing Service.

Application Process

To apply for the program, students must submit an application, online or paper. A $30 application fee (if not previously paid) plus $5 online fee, high school transcripts or GED/HSED scores, college transcript(s) and COMPASS/ASSET test scores.

Unique Requirements for Admission

Graduation from an accredited secondary school with a college preparatory course or recognized equivalency test. The applicant will be expected to have better than average grades. An acceptable COMPASS, ACT, SAT, ASSET or equivalent assessment test is required. Applicants must have successfully completed with a grade of C or better, two high school semesters or one college semester of geometry, chemistry, biology and algebra competency (within the last two years). Applicants must have successfully completed three to four years of English at the high school level or two semesters at the college level with a grade of C or better.

Program Requirements

Students are required to show evidence of current CPR "Professional Level" certification before beginning the first dental hygiene course. Students must maintain current CPR certification while attending the program. Students must submit a completed Health History form by the first week of the first semester.

Requirements for Graduation

The student must achieve at least a 2.0 (C) grade in microbiology, chemistry, anatomy, physiology and all dental hygiene and general education courses.

Program Courses

10-508-101 Dental Health Safety **1 credit**

Prepares dental auxiliary students to respond proactively to dental emergencies, control infection, prevent disease, adhere to OSHA Standards and safely manage hazardous materials. Students also take patient vital signs and collect patient medical/dental histories. CPR certification is a prerequisite; students will be required to show proof of certification before beginning the course. Prerequisites: Students must be currently recognized/ certified in basic life support procedures for health care provider, including cardiopulmonary resuscitation prior to enrollment in this course.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR		Credits	Hrs/week Lec-Lab
Pre – Dental Hygienist courses:			
The following courses **must be completed** prior to acceptance into dental courses:			
20-806-206	General Anatomy and Physiology*	4	5-4
20-806-201	General, Organic and Biological Chemistry*	5	4-2
20-806-273	Microbiology*	4	3-2
	Semester Total	**13**	
First Semester			
10-508-101	Dental Health Safety	1	1-0
10-508-102	Oral Anatomy, Embry, Histology	4	4-0
10-508-103	Dental Radiography	2	2-2
10-508-105	Dental Hygiene Process 1	4	2-6
	Elective*	2	E
	Semester Total	**13**	
Second Semester			
10-508-106	Dental Hygiene Process II	4	2-7
10-508-108	Periodontology	3	3-0
10-508-109	Cariology	1	2-0
10-508-110	Nutrition and Oral Health	2	2-0
10-508-113	Dental Materials	2	1-2
20-809-231	Introduction to Psychology*	3	3-0
	Semester Total	**15**	
SECOND YEAR			
First Semester			
10-508-111	General & Oral Pathology	3	3-0
10-508-112	Dental Hygiene Process III	5	2-14
10-508-114	Dental Pharmacology	2	2-0
10-508-115	Community Dental Health	2	2-0
10-508-116	Dental Pain Management	1	2-14
20-809-203	Introduction to Sociology* **OR**	3	3-0
10-809-197	Contemporary American Society*	(3)	(3-0)
	Semester Total	**16**	
Second Semester			
10-508-107	Dental Hygiene Ethics & Professionalism	1	1-0
10-508-117	Dental Hygiene Process IV	4	0-14
20-801-201	English Composition 1* **OR**	3	3-0
10-801-195	Written Communication*	(3)	(3-0)
20-810-201	Fundamentals of Speech* **OR**	3	3-0
10-801-198	Speech	(3)	(3-0)
20-809-236	Applied Psychology* **OR**	3	3-0
20-809-237	Abnormal Psychology* **OR**	(3)	(3-0)
20-809-233	Developmental Psychology* **OR**	(3)	(3-0)
20-809-235	Psychology of Personal Adjustment* **OR**	(3)	(3-0)
	Semester Total	**14**	

*General Anatomy & Physiology, General, Organic & Bio Chemistry, and Microbiology **must be** taken prior to entering the first-semester Dental Hygienist classes. Other general support classes are strongly encouraged to be taken prior to admission to the program.

Students must have two-person CPR, infant through adult for clinical dental hygiene and licensure exam.

MADISON AREA TECHNICAL COLLEGE

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Program Courses (continued)

10-508-102 Oral Anatomy, Embryology & Histology 4 credits
Prepares Dental Hygienist students to apply detailed knowledge about oral anatomy to planning, implementation, assessment, and evaluation of patient care. Students identify distinguishing characteristics of normal and abnormal dental, head, and neck anatomy and its relationship to tooth development, eruption and health. Pre-requisite: Acceptance into program. Co-requisite: 10-508-105.

10-508-103 Dental Radiography 2 credits
Prepares dental auxiliary students to operate x-ray units and expose bitewing, periapical, extra oral, and occlusal radiographs. Emphasis is placed on protection against x-ray hazards. Students also process, mount, and evaluate radiographs for diagnostic value. In this course students demonstrate competency on a manikin. In addition, students expose bitewing radiographs on a peer, role-play patient. Students gain further experience in exposing radiographs on patients in the clinical portion of their program. This course also provides the background in radiographic theory required for students to make informed decisions and adjustments. Pre-requisite: Acceptance into program.

10-508-105 Dental Hygiene Process I 4 credits
Introduces Dental Hygiene students to the basic technical/clinical skills required of practicing Dental Hygienists including use of basic dental equipment, examination of patients, and procedures within the dental unit. Under the direct supervision of an instructor, students integrate hands-on skills with entry-level critical thinking and problem-solving skills. The course also reinforces the application of Dental Health Safety skills. Pre-requisite: Acceptance into program. Co-requisites: 10-508-102. Pre/Co-requisites: 10-508-101 and 10-508-103.

10-508-106 Dental Hygiene Process 2 4 credits
This clinical course builds on and expands the technical/clinical skills student dental hygienists began developing in Dental Hygiene Process I. Under the direct supervision of an instructor, students apply patient care assessment, planning, implementation, and evaluation skills to provide comprehensive care for calculus case type 1 and 2 patients and perio case patients. This also introduces the application of fluoride and desensitizing agents, whole mouth assessments, comprehensive periodontal examinations, application of sealants, and patient classification. Students also begin performing removal of supragingival stain, dental plaque, calcified accretions, and deposits. In addition, they gain further experience in exposing radiographs on patients. Pre-requisites: 10-508-105. Co-requisites: 10-508-108, 10-508-109, 10-508-110 and 10-508-113.

10-508-107 Dental Hygiene Ethics & Professionalism 1 credit
Helps student dental hygienists develop and apply high professional and ethical standards. Students apply the laws that govern the practice of dental hygiene to their work with patients, other members of a dental team and the community. Emphasis is placed on maintaining confidentiality and obtaining informed consent. Students enhance their ability to present a professional appearance. Pre-requisites: all Pre-Dental courses, first, second & third semester DH classes. Co-requisites: 10-508-117 Pre/Co-requisites: all required general education classes.

10-508-108 Periodontology 3 credits
This course prepares student dental hygienists to assess the periodontal health of patients, plan prevention and treatment of periodontal disease, and to evaluate the effectiveness of periodontal treatment plans. Emphasis is placed on the recognition of the signs and causes of periodontal disease and on selection of treatments modalities that minimize risk and restore periodontal health. Pre-requisites: 10-508-105. Co-requisites: 10-508-106, 10-508-109, 10-508-110 and 10-508-113.

10-508-109 Cariology 1 credit
This course focuses on the characteristics and contributing factors of dental decay. Dental Hygiene students help patients minimize caries risk by developing treatment plans, communicating methods to patients, and evaluating treatment results. Pre-requisites: 10-508-105. Co-requisites: 10-508-106, 10-508-108, 10-508-110 and 10-508-113.

10-508-110 Nutrition and Oral Health 2 credits
Prepares student dental hygienists to counsel patients about diet and its impact on oral health. Students learn to distinguish between balanced and unbalanced diets and to construct diets that meet the needs of patients with compromised dental/oral health. Students also learn to counsel patients about the effect of eating disorders on dental health. Pre-requisites: 10-508-105. Co-requisites: 10-508-106, 10-508-108, 10-508-109 and 10-508-113.

10-508-111 General and Oral Pathology 3 credits
This course prepares the student dental hygienist to determine when to consult, treat or refer clients with various disease, infection or physiological conditions. Students learn to recognize the signs, causes, and implications of common pathological conditions including inflammatory responses, immune disorders, genetic disorders, developmental disorders of tissues and cysts, oral tissue trauma, and neoplasm of the oral cavity. Pre-requisites: 10-508-106. Co-requisites: 10-508-112, 10-508-114, 10-508-115 and 10-508-116.

10-508-112 Oral Anatomy and Physiology 5 credits
This clinical course builds on and expands the technical/clinical skills student dental hygienists developed in Dental Hygiene Process II. In consultation with the instructor, students apply independent problem-solving skills in the course of providing comprehensive care for calculus case type 1, 2, and 3 patients and perio case type 0, I, II, and III patients. This also introduces root detoxification using hand and ultra-sonic instruments, a selection of dental implant prophylaxis treatment options, and administration of chemotherapeutic agents. Students also adapt care plans in order to accommodate patients with special needs. Pre-requisites: 10-508-106. Co-requisites: 10-508-111, 10-508-114, 10-508-115 and 10-508-116.

10-508-113 Dental Materials 2 credits
Prepares dental auxiliary students to handle and prepare dental materials such as liners, bases, cements, amalgam, resin restorative materials, gypsum products and impression materials. Students also learn to take alginate impressions and clean removable appliances. Pre-requisites: 10-508-101 and 10-508-105. Co-requisites: 10-508-106, 10-508-108, 10-508-109 and 10-508-110.

10-508-114 Dental Pharmacology 2 credits
Prepares student dental hygienists to select safe and effective patient premedication and within the scope of dental hygiene practice. Students will also learn to recognize potential pharmacological contraindications for specific patients and to take measures to avoid negative impact or alert other members of the dental team to possible negative impact. Pre-requisites: 10-508-106. Co-requisites: 10-508-111, 10-508-112, 10-508-115 and 10-508-116.

10-508-115 Community Dental Health 2 credits
This course prepares the Dental Hygienist student to play a proactive role in improving the dental health of community members of all ages. Students perform and interpret dental health research to determine community dental health needs. Pre-requisites: 10-508-106. Co-requisites: 10-508-111, 10-508-112, 10-508-114 and 10-508-116.

10-508-116 Dental Pain Management 1 credit
This course prepares the student dental hygienist to work within the scope of dental hygiene practice to manage pain for dental patients. Students learn to prevent and manage common emergencies related to administration of local anesthesia, prepare the armamentarium, and administer local anesthesia. The course also addresses the recommendation of alternative pain control measures. Pre-requisites: 10-508-106. Co-requisites: 10-508-111, 10-508-112, 10-508-114 and 10-508-115.

10-508-117 Dental Hygiene Process IV 4 credits
This clinical course builds on and expands the technical/clinical skills student dental hygienists developed in Dental Hygiene Process III. With feedback from the instructor, students manage all aspects of cases in the course of providing comprehensive care for calculus case type 0, 1, 2, and 3 patients and for perio case type 0 I, II, and III patients. Emphasizes maximization of clinical efficiency and effectiveness. Prepares student dental hygienists to demonstrate their clinical skills in a formal examination situation. Pre-requisites: all Pre-Dental courses, first, second & third semester DH classes. Co-requisites: 10-508-107. Pre/Co-requisites: all required general education classes.

Career Potential:

- **Dental Hygienist**

With additional education and/or work experience, graduates may find employment as:

- **Dental Hygiene Instructor**
- **Public Health Hygienist**
- **Dental Laboratory Technician**
- **Dental Sales Representative**
- **Member of Dental Examining Board**
- **Public School Hygienist**
- **Dental Hygiene Administrator in hospital-type setting**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Dietary Manager

Program Number: 90-313-1

Certificate

Health-Related Professions Program Cluster

Center of Health & Safety Education

Program offered at Madison Campuses

For information call: (608) 246-6065, (608) 246-6313 or (800) 322-6282 Ext. 6065 or 6313

About the Program

The Dietary Manager Certificate prepares students to function as Food Service Managers. The program emphasizes the relationship of foods and nutrition to health. Successful students are able to communicate information, follow procedures, adhere to standards, organize work schedules, be wise decision makers, are emotionally stable and are able to handle difficult situations. They should have an interest and should be willing to learn and keep abreast of the current literature and technology in food, nutrition and health.

Students enrolled in the program have an opportunity to apply their knowledge in practical experiences for a total of 150 hours of clinical experience. They are affiliated in health care facilities such as hospitals, long term care facilities, schools and community settings such as day care facilities and correctional institutions.

Unique Requirements for Registration

1) High school graduation or HSED or GED; 2) two years of food service employment or post-high school training in food service; 3) Current employment in food service position; 4) Intermediate computer skills and access to a computer with internet, email & printing capabilities .

To succeed in the program, a student must receive a grade of C or higher in all courses.

Graduates of the certificate may apply for the national level registration to become a Certified Dietary Manager (CDM).

Curriculum

Offered in the January – May semester

First Semester		Credits	Hrs/week Lec-Lab
10-313-168	Nutrition for Dietetics #	3	3-0
10-313-178	Food Service Management 1 #	3	3-0
10-313-182	Coordinated Practice 1	3	1-8
	Total	9 credits	

offered as online classes

Career Potential:

- **Hospitals and Long-Term Care Facilities**
- **Mental Health and Special Needs Facilities**
- **Medical Clinics**
- **Food Service Management**
- **Hospitals and Long-Term Care Facilities**
- **School Food Service**
- **College Food Services**
- **Commercial, Employee Cafeterias**
- **Contractual, Catering**
- **Day Care (child/adult)**
- **Community Nutrition**
- **Schools**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Program Courses

10-313-168 Nutrition for Dietetics 3 credits
A study of nutrients, nutrient metabolism and nutrition resource materials prepares the student to analyze the nutritional needs of individuals and groups. Environmental factors affecting food availability, safety and selection are also discussed. Co requisites: 10-313-178 and 10-313-182.

10-313-178 Food Service Management 1 3 credits
Basic principles of food preparation and service are reviewed and applied in a quantity food production unit. Adjunct operational principles of menu planning, procurement, quality assurance, training, sanitation and safety are applied. Prerequisites or concurrent enrollment in 10-313-168 and 10-313-182.

10-313-182 Coordinated Practice 1 3 credits
Through clinic experiences, students learn modern management techniques to select and train employees, maintain departmental records, purchase food and supplies, supervise meal service, plan meetings, analyze, correct problems and develop interdepartmental communication. Prerequisite or concurrent enrollment in 10-313-178

Dietetic Technician

Program Number: 10-313-1

Associate in Applied Science Degree

Health-Related Professions Program Cluster

Center of Health & Safety Education

Program offered at Madison Campuses

For information call: (608) 246-6065, (608) 246-6313 or (800) 322-6282 Ext. 6065 or 6313

About the Program

The Dietetic Technician program prepares students to function as members of the health care team in community nutrition, nutritional care and/or food service management. The program emphasizes the relationship of foods and nutrition to health. Successful students are able to communicate information, follow procedures, adhere to standards, organize work schedules, be wise decision makers, are emotionally stable and are able to handle difficult situations. They should have an interest and should be willing to learn and keep abreast of the current literature and technology in food, nutrition and health.

Students enrolled in the program have an opportunity to apply their knowledge in practical experiences for a total of 520 hours. They are affiliated in health care facilities such as hospitals or long term care facilities and community settings such as WIC Clinics (Women, Infants and Children).

Unique Requirements for Admissions

1) High school graduation or HSED or GED; 2) two semesters of high school level or one semester of college level chemistry or biology with a grade of C or better; 3) algebra: competency demonstrated through satisfactory competency test scores or a college algebra course, grade of C or better.

Program Requirements

1) Caregiver Background Check (CBC); refer to the MATC Website for the Center for Health,& Safety Education Policy;
2) Health History exam by the first semester, including documentation of immunizations;
3) a two-step TB test once per year;
4) students must meet the "essential functions" identified for the program. The list of essential functions is available upon request.

To succeed in the program, a student must receive a grade of C or higher in all 313 courses and an average of C or higher in other required courses.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-313-168	Nutrition for Dietetics #	3	3-0
10-313-170	Food Science	1	1-0
10-313-171	Principles of Sanitation	1	1-0
10-313-172	Dietetic Technician Orientation	1	1-0
10-313-174	Medical Terminology for Dietetic Technicians	1	1-0
10-313-175	Nutrition & Body Structure	2	2-0
10-801-195	Written Communication* **OR**	3	3-0
10-801-210	English 1	(3)	(3-0)
10-806-134	General Chemistry*	4	3-0
	Elective	3	E
	Semester Total	**19**	
Second Semester			
10-313-176	Nutrition in the Life Cycle	3	3-0
10-313-178	Food Service Management 1 #	3	3-0
10-313-180	Physiology for Dietetics	3	3-0
10-313-182	Coordinated Practice 1 #	3	1-8
10-801-198	Speech* OR	3	3-0
10-801-196	Oral/Interpersonal Communication*	(3)	(3-0)
10-809-199	Psychology of Human Relations* **OR**	3	3-0
20-809-231	Introduction to Psychology	(3)	(3-0)
	Semester Total	**18**	
SECOND YEAR			
First Semester			
10-313-184	Medical Nutrition Therapy 1	3	3-0
10-313-186	Food Service Management 2	3	3-0
10-313-188	Coordinated Practice 2	3	1-8
10-313-190	Eating Behaviors Counseling	3	3-0
10-804-106	Intro to College Math*	3	3-0
10-809-195	Economics*	3	3-0
	Semester Total	**18**	
Second Semester			
10-313-192	Medical Nutrition Therapy 2	4	4-0
10-313-194	Community Nutrition	2	2-0
10-313-196	Seminar in Dietetics	2	2-0
10-313-198	Nutrition Practicum	4	0-16
20-809-203	Introduction to Sociology* **OR**	3	3-0
10-809-197	Contemporary American Society*	(3)	(3-0)
	Semester Total	**15**	

*Courses which may be taken prior to admission to the program.
Certified Dietary Managers will get transfer credit for these classes. Documentation of your certification must be submitted to verify transfer credit.

Note: Some courses may be available online. Check with the program director: (608) 246-6313.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Program Courses

10-313-168 Nutrition for Dietetics 3 credits
A study of nutrients, nutrient metabolism and nutrition resource materials prepares the student to analyze the nutritional needs of individuals and groups. Environmental factors affecting food availability, safety and selection are also discussed.

10-313-170 Food Science 1 credit
Students utilize scientific and medical nutrition therapy principles involved in the preparation of food to provide optimum nutrition and palatability. Laboratory preparation techniques emphasize food quality, sanitation and safety.

10-313-171 Principles of Sanitation 1 credit
Covers good service sanitation principles and the role of food service personnel in the prevention of contamination and food borne illness. Emphasis is directed toward food service in health care facilities. Certification through the Educational Foundation of the National Restaurant Association is a requirement for completion and can be used to apply for state certification.

10-313-172 Dietetic Technician Orientation 1 credit
The policies of MATC, the Dietetics program, and the American Dietetic Association are explained. Students identify and observe standards of practice to function with the health care team and to understand the health care system. Math calculations and vital signs used in nutritional assessments are introduced.

10-313-174 Medical Terminology for the Dietetic Tech. 1 credit
Students study the components of medical words to learn medical terminology for communication with the members of the health care team. Emphasis is placed on recognition, pronunciation, definition and spelling of terms and abbreviations.

10-313-175 Nutrition & Body Structure 2 credits
A concise introduction to human body structure. Normal and abnormal states of the body and basic disease processes affecting the role of nutrients influencing body structure are emphasized. Common problems encountered in a variety of health care settings are presented.

10-313-176 Nutrition in the Life Cycle 3 credits
The nutrient and nutritional counseling needs for normal growth and optimal health throughout the life cycle are explored. Prerequisite: 10-313-168.

10-313-178 Food Service Management 1 3 credits
Basic principles of food preparation and service are reviewed and applied in a quantity food production unit. Adjunct operational principles of menu planning, procurement, quality assurance, training, sanitation and safety are applied. Prerequisites or concurrent enrollment in 10-313-171 and 10-313-170.

10-313-180 Physiology for Dietetics 3 credits
The physiology of human organ systems will be studied as it relates to nutrient requirements in health and disease. Organ systems emphasized include: liver, gastrointestinal, musculoskeletal, and nervous. Prerequisite: 10-313-168

10-313-182 Coordinated Practice 1 3 credits
Through clinic experiences, students learn modern management techniques to select and train employees, maintain departmental records, purchase food and supplies, supervise meal service, plan meetings, analyze, correct problems and develop interdepartmental communication. Prerequisite or concurrent enrollment in: 10-313-168 & 10-313-178.

10-313-184 Medical Nutrition Therapy 1 3 credits
Students develop knowledge and skills relating to the principles and methods of diet as a therapeutic tool in various disease conditions, including obesity and overweight, diabetes mellitus and cardiovascular diseases. Prerequisite: 10-313-176.

10-313-186 Food Service Management 2 3 credits
Students learn management techniques in planning, organizing, controlling, delegating and communicating to meet the needs of the various health care systems and their regulatory agencies. Prerequisites: 10-313-178 and 10-313-182.

10-313-188 Coordinated Practice 2 3 credits
Students are affiliated in area health care facilities for 128 hours. They are provided with opportunities to apply the skills and knowledge necessary to meet the nutritional care needs of individuals and the food service management responsibilities of the facility. Prerequisite: 10-313-182 and concurrent enrollment in 10-313-184.

10-313-190 Eating Behaviors Counseling 3 credits
Teaches students how to facilitate change in clients' eating behaviors by providing related methods and interventions. A combination of education (what to do) and behavioral (how to do it) approaches to effectively improve food and health behavioral changes. Prerequisite: 10-313-168 or instructor's consent.

10-313-192 Medical Nutrition Therapy 2 4 credits
A continuation of Medical Nutrition Therapy 1. Topics covered include the nutritional management of diseases of the digestive tract and organs, cancer, renal disease and other miscellaneous disease conditions, as well as the role of the dietetic technician in nutritional support. Prerequisite: 10-313-184.

10-313-194 Community Nutrition 2 credits
Students learn, through classroom discussions and field trips, to identify and plan the nutritional and educational needs of community groups, including the utilization of local, state and federal nutritional education and food supplement programs. International and ethnic nutrition concerns will be explored. Prerequisite: 10-313-176.

10-313-196 Seminar in Dietetics 2 credits
Each student develops an in-depth seminar on a current topic in dietetics and presents this as a group facilitator and discussion leader. Methods of pursuing and obtaining career opportunities are also identified. Corequisites: 10-313-192 and 10-313-198.

10-313-198 Nutrition Practicum 4 credits
This field experience is designed to simulate an actual employment situation. Students are affiliated for 288 hours. Individualized field placement is coordinated by the dietetic faculty in a health care facility or community nutrition program. The student applies previously acquired knowledge and skills on the job. Nutrition education is practiced both in group and individualized settings. Prerequisites: successful completion of all first semester, second year Dietetic Technician courses and concurrent enrollment in 10-313-196.

Career Potential:

- **Clinical Nutrition**
- **Hospitals and Long-Term Care Facilities**
- **Mental Health and Special Needs Facilities**
- **Medical Clinics**
- **Food Service Management**
- **Hospitals and Long-Term Care Facilities**
- **School Food Service**
- **College Food Services**
- **Commercial, Employee Cafeterias**
- **Contractual, Catering**
- **Day Care (child/adult)**
- **Community Nutrition**
- **Schools**
- **Governmental Programs (WIC, Headstart, etc.)**
- **Congregate Meal Sites**
- **Health Care Organizations (Cancer Society, Diabetes Association, Heart Association)**
- **Consultant to Retail Food Operations (restaurants, grocery stores)**
- **Wellness and Fitness Programs**
- **Weight Maintenance Programs**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Madison Area Technical College

Language Interpreter for Health Services

Effective: 2010-2011

Program Number: 30-538-1

Less-than-one-year Technical Diploma

Health-Related Professions Program Cluster

Center of Health & Safety Education

Program offered at South Campus

For information call: (608) 246-6065 or (800) 322-6282 Ext. 6065

About the Program

Language Interpreter for Health Services prepares students for employment as entry-level interpreters in a variety of sites including hospitals, clinics, family practice, and community agencies. The student will acquire a combination of cultural competency and interpreting skills that are necessary to bridge the divide between non-English speaking individuals and the health care system. Interpreters will assist non-English speaking clients access quality health services.

Aptitudes and interests in helping people and facility with language are helpful for this career area.

This program is offered primarily in the evening and on a part time basis.

Program outcomes for graduates include:

- Consecutive and simultaneous interpreting
- Sight translation
- Knowledge and applicability of medical terminology
- Strengthened interpersonal skills
- Knowledge and applicability of culturally and linguistically appropriate communication styles

Requirements for All Applications Submitted for the Current Academic Year:

Admissions Requirements

1) High school or higher graduation, HSED or GED completion;
2) satisfactory scores on:
COMPASS – Reading, Writing, E-Write, and Pre-Alg, Versant-English, Versant-Spanish and UW Placement for Spanish.

Program Requirements

1) Fluent bilingual skills in Spanish and English, as determined by testing assessments;
2) current Caregiver Background Check

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
31-538-301	Introduction to Interpreting (9 wks)	1	4-0
31-538-302	Introduction to Basic Translation Skills (9 wks)	1	4-0
31-538-304	Introduction to Interpreting in Spanish (9wks)	2	6-0
31-538-305	Intro to Basic Translation in Spanish (9 wks)	2	6-0
	Semester Total	**6**	
Second Semester			
31-538-306	Introduction to Computer Basics (9 wks) **OR**	1	2-2
10-103-137	Word-Beginning	(1)	(1-0)
31-538-307	US Healthcare System	2	2-0
31-538-309	Interpreting in Mental Health (Spanish) (9 wks)	1	4-0
31-538-303	Cultural Competency (9 wks)	1	4-0
31-538-308	Interpreting in Health Care in Spanish	1	2-0
	Semester Total	**6**	
Summer Semester			
31-538-310	Ethics	1	4.5-0
31-538-311	Business Practices	1	4.5-0
31-538-312	Medical Practicum	1	0-9
31-538-313	Cultural Competency in Medical Setting	1	4.5-0
	Semester Total	**4**	

Language Interpreter Course Prerequisites

Students enrolling in the courses identified within this program must meet the following prerequisites: high school graduation or GED and language assessments tests.

Program Courses

31-538-301 Intro to Interpreting 1 credit
This initial interpretation course develops students' listening and memory skills and provides strategies to translate texts orally (sight) from Spanish into English or vice versa while maintaining the same style and register as the original. Development and enhancement of students' bilingual potential in both English and Spanish through the acquisition of non-technical vocabulary and comparative syntax will also be emphasized. Class is taught in English.

31-538-302 Intro to Basic Translation Skills 1 credit
Principles and procedures for the translation of written materials. Includes an introduction to translation, translation preparation, translation procedures, and basics of grammar. Class is taught in English.

31-538-303 Cultural Competency 1 credit
An orientation to some of the factors that influence people to speak, act, negotiate and make decisions. The objective is to modify personal assumptions and habits that impede success in the workplace, at whatever level of employment, whether domestic or international. Students will learn how styles of thinking, value systems and political/social realities affect relationships. Special consideration will be given to international communication, negotiations, marketing and host international visitors. Class is taught in English.

31-538-304 Intro to Interpreting in Spanish 2 credits
Specific theories and practices in interpreting oral communication from English to Spanish and Spanish to English. Includes theories of interpretation, techniques of interpretation, interpretation strategies, interpretation procedures, and modes of interpretation. Class is taught in English and Spanish. Prerequisite: 31- 538-301.

31-538-305 Intro to Basic Translation Skills in Spanish 2 credits
Principles and procedures for the translation of written materials. Includes an introduction to translation, translation preparation, translation procedures, basics of grammar in the target languages English and Spanish. Analysis of the Spanish language from the translator's point of view. Includes the structure of Spanish, cultural and stylistic components, paragraph and document development, mechanics and punctuation for editing, and writing resources. Class is taught in English and Spanish. Prerequisite: 31-538-302.

31-538-306 Intro to Computer Basics 1 credit
This class provides an overview of the computer for all level users. Focus will be on using software to keep your freelance interpreter business running smoothly. Class is taught in English.

31-538-307 US Health Care System 2 credit
This class is designed to give the student a broad understanding of the dynamics, key elements and overall principles of the health care system in the US. Particular attention is given to terms used by health services professionals and payer/provider relationships. Class is taught in English.

31-538-308 Interpreting in Healthcare in Spanish 1 credit
This course develops the techniques, practice and knowledge needed to function as interpreters in a medical environment. Interpretation modes such as sight translation and consecutive interpretation as they apply to the medical setting are emphasized. Medical vocabulary/terminology in both English and Spanish will also be introduced. Class is taught in English and Spanish. Prerequisites: 31-538-301; 31-538-302; 31-538-304 and 31-538-305. Corequisite: 31-538-303

31-538-309 Interpreting in Mental Health in Spanish 1 credit
This course develops the techniques, practice and knowledge needed to function as interpreters in a mental health care setting. Interpretation modes such as sight translation and consecutive interpretation as they apply to a mental health care setting are emphasized. Mental health vocabulary/terminology in both English and Spanish will also be introduced. Class is taught in English and Spanish. Prerequisites: 31-538-301; 31-538-302; 31-538-303; 31-538-304 and 31-538-305

31-538-310 Ethics 1 credit
This course provides an in depth examination of the principals of the National Code of Ethics for Interpreters in Health Care and their application in the work setting. Prepares students to display professionalism and perform within legal and ethical boundaries. Class is taught in English.

31-538-311 Business Practices 1 credit
This course covers the business basics of working as a freelance medical interpreter. Gives a brief overview of marketing, insurance, tax implications, home office, organization, managing finances, legal do's & don'ts, business resources and technology as they pertain to freelance interpreting. Class is taught in English and Spanish.

31-538-312 Medical Practicum 1 credit
Engaging in a specialty area internship to produce a translated product. Includes agency/individual sponsor, internship goals, portfolio project and on-site or supervised training.

31-538-313 Cultural Competency in Medical Setting 1 credit
This course provides an overview of cultural diversity as it relates to the delivery of health care services. Culture, diversity and cultural competence will be examined. Strategies to assess and evaluate the culturally diverse client will be discussed to prepare health care providers to meet the changing needs of clients. Class is taught in English. Prerequisite: 31-538-303.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Mammography Certificate

Program Number: 80-526-1

Advanced Technical Certificate

Health-Related Professions Program Cluster

Center of Health & Safety Education

Program offered at Downtown Madison Campus

For information call: (608) 246-6065 or (608) 258-2478
(800) 322-6282 Ext. 6065 or 2478

About the Program

The mammographer is a registered radiologic technologist who produces radiographic images of the breast. Duties include: obtaining a thorough patient history, providing a specific explanation of the mammographic procedure, providing information and/or demonstrating the procedure of self breast examination, positioning of the patient to obtain proper projection and a quality mammographic image, making exposure factor selections, processing the image, storing and retrieving images, performing quality assurance tests and maintaining a quality control program to meet the standards of the Mammography Quality Standards Act (MQSA) and American College of Radiology (ACR).

This course provides the student with ample opportunity to meet the ARRT requirements to enable the student to write the mammography certification examination. Students will be involved in screening, diagnostic and interventional procedures. Students will review mammographic images with radiologists to gain experience in evaluating radiographic technique, breast anatomy, pathology and to gain an appreciation for the importance of good positioning techniques.

Technologists who complete the Advanced Technical Certificate in Mammography will meet the requirements of the MQSA and will be eligible to sit for the American Registry of Radiologic Technologists (ARRT) certification examination in mammography (the technologist must have been a R.T.R. for at least 12 months before one is eligible to write the mammography certification examination).

Requirements for the Advanced Technical Certificate in Mammography

1) A registered radiologic technologist; 2) a student radiographer enrolled in an accredited radiography program in their second year, second semester.

Requirements for Clinical Placement

1) A completed Caregiver Background Check (CBC) if required by clinical affiliation; refer to the Madison College Website for Health Human and Protective Services Policy; 2) a completed Personal History Form if required for clinical affiliation.

Curriculum

Courses		Credits	Hrs/week Lec-Lab
10-526-185	Mammographic Instrumentation and Quality Assurance	3	3-0
10-526-186	Mammographic Positioning and Anatomy	3	3-0
10-526-187	Clinical Mammography	3	0-12
	Total	**9**	

Courses

10-526-185 Mammographic Instrumentation and Quality Assurance 3 credits

Provides the student with the foundational concepts of mammographic equipment and quality assurance testing. This course will include types and functions, factors that govern and influence image production and recording, and quality control equipment. The student will gain the knowledge to construct a quality assurance program for a mammography program following the ACR and MQSA guidelines. Offered online only.

10-526-186 Mammographic Positioning and Anatomy 3 credits

Provides the fundamentals of mammography positioning. The course will include breast anatomy and physiology, pathology and treatment of breast disease, and interventional procedures. Course content will emphasize the importance of establishing a positive relationship with the patient, addressing their psychological needs and providing patient information related to the procedure. Offered as a combination online and traditional class.

10-526-187 Clinical Mammography 3 credits

Provides the student with the clinical experience required to become competent in performing mammographic procedures, mammographic film critique and time to perform required quality control testing. Upon course completion, the student will be competent in completing the entire examination from request and chart review, to patient screening, explaining the procedure to the patient, positioning the patient, using required accessories, setting the equipment, making a correct exposure , processing the film, completing paperwork, using the computer to store patient data and maintaining quality control

Career Potential:

- **Mammographer**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Effective: 2010-2011

Medical Assistant

Program Number: 31-509-1

One-Year Technical Diploma

Health-Related Professions Program Cluster

Center of Health & Safety Education

Program offered at Madison Campuses

For information call: (608) 246-6065, (608) 243-4774 or (800) 322-6282 Ext. 6065 or 4774

About the Program

The Madison Area Technical College Medical Assistant program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP), on recommendation of the Curriculum Review Board of the American Association of Medical Assistants Endowment (AAMAE). Commission on Accreditation of Allied Health Education Programs, 35 East Wacker, Drive, Suite 1970, Chicago, IL, 60601-2208, (312) 553-9355.

The Medical Assistant is a two-semester program which prepares students to work in doctors' offices, clinics and other medical facilities. As one of health care's most versatile and in demand professions, graduates perform various duties such as assisting in the physical exam, drawing blood, administering EKGs, and carrying out lab procedures. Clinical experiences are provided through placement in a local medical clinic during the last four weeks of the final semester. Graduates are eligible and encouraged to sit for the national certification examination offered by the American Associate of medical Assistants (www.aama-nt.org).

Aptitudes and interests that are helpful are a genuine interest in medicine and in helping people.

Unique Requirements for Admission

1) High school graduate, HSED or GED;
2) two semesters of high school level or one semester of college level of science with grades of C or better;
3) Math competency (within the last two years) demonstrated through satisfactory scores on the Compass or equivalent assessment test or college-level Math.
4) Satisfactory testing in Reading, Writing and E-Write Compass testing or equivalent testing.

Program Requirements

1) a physical health exam with the Health History form completed, including documentation of immunizations is required prior to beginning program lab courses;
2) a two-step TB test is required at least once per year;
3) current Healthcare Provider CPR Certification prior to Practicum;
4) Criminal Background Check prior to clinicals, for more information: www.dhfs.state.wi.us/caregiver.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
31-509-301	Medical Assistant Administrative Procedures	2	2-0
31-509-302	Human Body in Health and Disease **	3	5-0
10-501-101	Medical Terminology**	3	3-0
31-509-303	Medical Assistant Laboratory Procedures 1	2	2-2
31-509-304	Medical Assistant Clinical Procedures 1	4	4-4
10-103-133	Excel-Beginning**	1	2.25-.75
10-103-137	Word-Beginning**	1	1.5-1.5
	Semester Total	**16**	
Second Semester			
31-509-305	Medical Assistant Laboratory Procedures 2	2	2-3
31-509-306	Medical Assistant Clinical Procedures 2	3	4-3
31-509-307	Medical Office Insurance and Finance	2	3-0
31-501-308	Pharmacology for Allied Health	2	4-0
31-509-309	Medical Law, Ethics and Professionalism	2	2-0
10-801-195	Written Communications ** ### **OR**	3	3-0
20-801-201	English 1 ** ###	(3)	(3-0)
31-509-310	Medical Assistant Practicum	3	1
	Semester Total	**17**	

**Course which may be taken prior to entering the program.

English taken with second semester classes are to be completed in less that 12 week in order to participate in the Medical Assistant Clinicals and Practicum

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Note: A copy of the essential functions necessary to successfully complete the program of study is available on the web site.

MADISON AREA TECHNICAL COLLEGE

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Program Courses

31-501-308 Pharmacology for Allied Health 2 credits
Introduces students to medication and basic pharmacology principles. Students apply basic pharmacodynamics to identify common medications and calculate dosages in preparation for medication administration Prerequisite: All first semester courses. Corequisites: 31-509-305 and 31-509-306.

31-509-301 Medical Assistant Admin Procedures 2 credits
Introduces medical assistant students to office management and business, business administration, and the electronic medical record (EMR) in the medical office. Students learn to schedule appointments, perform filing, record keeping, inventory of supplies, telephone and reception duties, communicate effectively with patients and other medical office staff. Prerequisites or Corequisites: Computer classes and admitted to Medical Assistant program.

31-509-302 Human Body in Health & Disease 3 credits
Focuses on diseases that are frequently first diagnosed and treated in the medical office setting. Students learn to recognize the causes, signs and symptoms of diseases of the major body systems as well as the diagnostic procedures, usual treatment, prognosis and prevention of common diseases. Prerequisite or Corequisite: Medical Terminology.

31-509-303 Medical Assistant Lab Procedures 1 2 credits
Introduces medical assistant students to laboratory procedures commonly performed by medical assistants in a medical office setting. Students perform CLIA waived routine laboratory procedures commonly performed in the ambulatory care setting. Students follow laboratory safety requirements and federal regulations while performing specimen collection and processing, microbiology and urinalysis testing. Prerequisite or Corequisite: All other first semester courses. Corequisites: 31-509-304 and admitted to Medical Assistant program.

31-509-304 Medical Assistant Clinical Procedures I 4 credits
Introduces medical assistant students to the clinical procedures performed in the medical office setting. Students perform basic examining room skills including screening, vital signs, patient history, minor surgery and patient preparation for routine and specialty exams in the ambulatory care setting. Prerequisite or Corequisite: All other first semester courses. Corequisites: 31-509-303 and admitted to Medical Assistant program.

31-509-305 Medical Assistant Lab Procedures 2 2 credits
Prepares students to perform laboratory procedures commonly performed by medical assistants in the ambulatory care setting under the supervision of a physician. Students perform phlebotomy, immunology, hematology and chemistry laboratory procedures. Prerequisite: All first semester courses. Corequisites: 31-509-306 and 31-509-310.

31-509-306 Medical Assistant Clinical Procedures 2 3 credits
Prepares students to perform phlebotomy and CLIA waived hematology, chemistry, immunology and laboratory procedures commonly performed by medical assistants in the ambulatory care setting. Prerequisite: All first semester courses. Corequisites: 31-509-305 and 31-509-310.

31-509-307 Medical Office Insurance and Finance 2 credits
Introduces medical assistant students to health insurance and finance in the medical office. Students perform bookkeeping procedures, apply managed care guidelines and complete insurance claim forms. Students use medical coding and managed care terminology to perform insurance-related duties. Prerequisites: 10-501-101, 31-509-302 and computer courses.

31-509-309 Medical Law, Ethics and Prof 2 credits
Prepares students to display professionalism and perform within ethical and legal boundaries in the health care setting. Students maintain confidentiality, examine legal aspects of the medical record, perform quality improvement procedures, examine legal and bioethical issues, and demonstrate awareness of diversity. Prerequisites or Corequisites: 10-501-101 and 31-509-302.

31-509-310 Medical Assistant Practicum 3 credits
Requires medical assistant students to integrate and apply knowledge and skills from all previous medical assistant courses in actual ambulatory health care settings. Learners perform medical assistant administrative, clinical and laboratory duties under the supervision of trained mentors to effectively transition to the role of a medical assistant. This is a supervised, unpaid, clinical experience. Prerequisites: 31-509-303 and 31-509-304. Corequisites: 31-509-305 and 31-509-306.

Career Potential:

- **Medical Assistant**
- **Claims Analyst**
- **Medical Records Clerk**
- **Medical Office Assistant**
- **Phlebotomist**
- **Pharmacy Aide**
- **Receptionist**
- **EKG Technician**

With additional education and/or work experience, graduates may find employment as:

- **Laboratory Assistant**
- **Medical Office Manager**
- **Medical Transcriptionist**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Effective: 2010-2011

Medical Coding Specialist

Program Number: 31-530-1

Less-Than-One-Year Technical Diploma & One-Year Advanced Technical Diploma

Health-Related Professions Program Cluster

Center of Health & Safety Education

Program offered at Madison Campuses

For information call: (608) 246-6065, (608) 246-6015 or (800) 322-6282 Ext. 6065 or 6015

About the Program

The Medical Coding Specialist program prepares individuals for employment as entry-level coding specialists in health care facilities such as hospitals, clinics, physician practice groups, surgery centers, long-term care facilities and home health care agencies. Coding specialists are also employed by consulting firms, coding and billing services, insurance companies, governmental agencies and computer software companies.

The coding specialist reviews medical documentation provided by physicians and other health care providers and translates this into numeric codes. The coding specialist assigns and sequences diagnostic and procedural codes using universally recognized coding systems. Several uses of coded data are for payment of health care claims, statistics and medical research.

Aptitudes and interests which may be helpful for success in this program include: 1) ability to be precise, exact and detail-oriented; 2) ability to adhere to standards and guidelines; 3) a passion for learning about the medical field; 4) ability to communicate well with others; 5) ability to accept challenges and problem-solve; and 6) respect for confidential information.

A copy of the essential functions necessary to successfully complete the program of study is available upon request from the program office.

Program Requirements
Admission Requirements
1) High school graduation or G.E.D. or H.S.E.D. with above average grades; 2) personal computer skills with knowledge of Windows; 3) good health as evidenced by a medical examination and proper immunizations; and 4) COMPASS or equivalent assessment test. Students are admitted in the fall and spring semesters. Part-time students are welcome. Online courses are available.

Course Prerequisites
A copy of the course prerequisites is available upon request from the division office. Academic advising is available to assist the student in registering for the appropriate courses.

Clinical Laboratory Experience
An 18-hour, unpaid clinical laboratory experience is part of the CPT Coding course (10-530-184). This takes place during regular business hours at a regional health care facility, insurance company, consulting firm or governmental agency.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

Basic Medical Coding Specialist Program (Less-Than-One-Year Technical Diploma)

Courses		Credits	Hrs/week Lec-Lab
10-501-153	Body Structure and Function **OR**	3	3-0
20-806-206	General Anatomy & Physiology**	(4)	(3-2)
10-501-101	Medical Terminology	3	3-0
10-530-181	Introduction to the Health Record	1	1-0
10-530-182	Human Diseases for the Health Professions	3	3-0
10-530-183	ICD-9-CM Coding	3	2-2
10-530-184	CPT Coding	3	2-2
10-530-185	Health Care Reimbursement	2	1-2
	Total	**18**	

**General Anatomy and Physiology is recommended for those who plan to pursue an associate degree and/or a bachelor's degree.

Course Delivery Format
All courses in the Basic Program are offered each semester. Both the traditional face-to-face and the online delivery formats are used for courses in this program. Please contact the center office (608-246-6065) to find out which format the courses will be offered in for the upcoming semester.

Advanced Medical Coding Specialist Program (One-Year Advanced Technical Diploma Program)

Completion of the Basic Medical Coding Specialist Program plus:

Courses		Credits	Hrs/week Lec-Lab
10-530-186	Advanced ICD-9-CM Coding	3	2-2
10-530-187	Advanced CPT Coding	3	2-2
10-530-188	Certification and Professional Development	1	1-0
10-530-189	Management of Coding Services	1	1-0
	Total	**8**	

Course Delivery Format
The courses in the Advanced Program are offered in the online delivery format. Optional on-campus laboratory sessions are scheduled for some courses for those who need face-to-face assistance. All courses are not offered each semester; please contact the center office (608-246-6065) to find out which courses will be offered for the upcoming semester.

Program Courses

10-501-101 Medical Terminology 3 credits
Focuses on the component parts of medical terms: prefixes, suffixes and word roots. Students practice formation, analysis and reconstruction of terms. Emphasis is on spelling, definition and pronunciation. Introduction to operative, diagnostic, therapeutic and symptomatic terminology of all body systems, as well as systemic and surgical terminology, is included.

10-501-153 Body Structure 3 credits
A concise introduction to human body structure and function. Normal and abnormal states of the body and basic disease processes affecting the body are emphasized. Common problems encountered in a variety of health care settings are presented.

10-530-181 Introduction to the Health Record 1 credit
Prepares students to illustrate the flow of health information in various health care delivery systems and within the health information department. It prepares students to retrieve data from health records. Professional ethics, confidentiality and security of health information are emphasized. Pre or Co-requisites of: 10-501-101 Medical Terminology & 10-501-153 Body Structure & Function

10-530-182 Human Diseases for the Health Profession 3 credits
Focuses on the common diseases of each organ/body system as encountered in all types of health care settings by health professionals. Emphasis is placed on understanding the etiology (cause), signs and symptoms, diagnostic tests, treatment (including pharmacologic) of each disease. Pre or Co-requisites of: 10-501-101 Medical Terminology & 10-501-153 Body Structure & Function

10-530-183 ICD-9-CM Coding 3 credits
Prepares students to assign ICD-9-CM codes supported by medical documentation with entry-level proficiency. Students apply ICD-9-CM instructional notations, conventions, rules and official coding guidelines when assigning ICD-9-CM codes to case studies and actual medical record documentation. Pre or Co-requisites of: 10-530-181 Intro to the Health Record & 10-530-182 Human diseases for the Health Profession and Co-requisite of 10-530-183 CPT Coding

10-530-184 CPT Coding 3 credits
Prepares students to assign CPT codes, supported by medical documentation with entry-level proficiency. Students apply CPT instructional notations, conventions, rules and official coding guidelines when assigning CPT codes to case studies and actual medical record documentation. . Pre or Co-requisites of: 10-530-181 Intro to the Health Record & 10-530-182 Human diseases for the Health Profession and Co-requisite of 10-530-183 ICD-9-CM Coding

10-530-185 Health Care Reimbursement 2 credits
Prepares the students to compare and contrast health care payers, illustrate the reimbursement cycle and to comply with regulations related to fraud and abuse. Students assign Diagnosis Related Groups (DRGs), Ambulatory Payment Classifications (APCs), and Resource Utilization Groups (RUGs) with entry-level proficiency using computer encoding and grouping software. Pre or Co-requisites of: 10-530-183 ICD-9-CM & 10-530-184 CPT Coding

10-530-186 Advanced ICD-9-CM Coding 3 credits
Requires the student to apply and expand the knowledge gained from the basic course, ICD-9-CM Coding, to more difficult cases. The student will develop critical-thinking skills by using current references to research coding questions and issues. Computerized encoding software is utilized. Pre or Co-requisite of: 10-530-185 Health care Reimbursement

10-530-187 Advanced CPT Coding 3 credits
Requires the student to apply and expand the knowledge gained from the basic course, CPT Coding, to more difficult cases. The student will develop critical-thinking skills by using current references to research coding questions and issues. Computerized encoding software is utilized. . Pre or Co-requisite of: 10-530-185 Health care Reimbursement

10-530-188 Certification and Professional Development 1 credit
This course prepares students for coding certification and includes mock coding certification exams. Students participate in professional development activities and discuss career progression opportunities. . Pre or Co-requisite of: 10-530-185 Health care Reimbursement

10-530-189 Management of Coding Services 1 credit
This course focuses on common coding management issues including coding quality, coding productivity, and workflow processes. Recruitment training and retention of coding staff are included. . Pre or Co-requisite of: 10-530-185 Health care Reimbursement

Certification
Graduates may become certified by taking one or more of the following national coding certification examinations:

American Health Information Management Association (AHIMA)
*Certified Coding Associate (CCA)
*Certified Coding Specialist (CCS)
*Certified Coding Specialist–Physician Based (CCS-P)

American Academy of Professional Coders (AAPC)
*Certified Professional Coder (CPC)
*Certified Professional Coder–Hospital Based (CPC-H)

Career Potential:

- **Coder**
- **Coding Specialist**
- **Coding Technician**

With additional education and/or work experience, graduates may find employment as:

- **Certified**
- **Coding Specialist**
- **Certified**
- **Professional Coder**
- **Registered Health Information Technician**
- **Registered Health Information Administrator**
- **Reimbursement Specialist**
- **Supervisor**
- **Consultant**
- **Seminar Presenter/ Speaker**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev. 03/10

Occupational Therapy Assistant

Program Number: 10-514-1

Associate in Applied Arts Degree

Health-Related Professions Program Cluster

Center of Health & Safety Education

Program offered at the Downtown Campus

For information call: (608) 246-6065 or (800) 322-6282 Ext. 6065

About the Program

Occupational therapy assistants serve individuals across the life span whose ability to participate in everyday occupations is complicated by developmental disability, physical and/or emotional illness, injury or aging. Occupations are the activities of daily life that have value to individuals and help them be contributing members of their communities. Occupational therapy assistants 1) use purposeful activities to improve the physical, cognitive, emotional and social skills needed to function; 2) offer alternative approaches and adaptations to compensate when needed and 3) promote the balance of self-care, work and leisure activities that results in the quality of life and level of independence valued by the individual.

This program prepares occupational therapy assistants who collaborate with occupational therapists. OT assistants are employed in community settings providing mental health, residential care and home health and work-related services as well as in nursing homes, hospitals and schools.

Accreditation/Credentialing: This program is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association (AOTA), 4720 Montgomery Lane, P.O. Box 31220, Bethesda, MD 20824-1220, (301) 652-AOTA. Credentialing as a Certified Occupational Therapy Assistant (COTA) is separate from Madison College graduation. Certification with the National Board for Certification in Occupational Therapy (NBCOT) requires passing a nationally administered OTA competency examination. Licensure by the State of Wisconsin or other states requires passing this certification exam and complying with any other state credentialing requirements. A felony conviction may affect a graduate's ability to sit for the NBCOT certification examination or attain state licensure.

NBCOT Exam Pass Rates:

The total number of graduates who passed the NBCOT certification exam in 2007-2009 was 39 of 40 total first time test takers, which is a 98% pass rate. During that three year period, the program had 46 graduates. The total pass rate, including first time and repeat test takers in 2007-2009 was 39 of 40, which is 98%. The program does not have official NBCOT scores for six program graduates during this three year period.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-514-171	Introduction to Occupational Therapy	3	2-1
10-514-172	Medical and Psychosocial Conditions	3	2-1
10-514-173	Activity Analysis and Applications	2	0-2
10-801-195	Written Communication* **OR**	3	3-0
20-801-201	English Composition 1*	(3)	(3-0)
20-806-206	General Anatomy and Physiology* ***	4	3-2
20-809-231	Introduction to Psychology*	(3)	(3-0)
	Semester Total	**18**	
Second Semester			
10-514-174	OT Performances Skills	4	0-4
10-514-175	Psychosocial Practice	3	1-2
10-514-176	OT Theory and Practice	3	1-2
10-514-178	Geriatric Practice	3	1-2
20-809-237	Abnormal Psychology *	3	3-0
20-801-202	English Composition 2 **OR**	3	3-0
20-810-201	Fundamentals of Speech	(3)	(3-0)
	Semester Total	**19**	
Summer Semester			
20-809-233	Developmental Psychology*	3	3-0
20-809-217	Race, Class, Gender* **OR**	3	3-0
10-809-197	Contemporary American Society * **OR**	(3)	(3-0)
20-809-203	Introduction to Sociology *	(3)	(3-0)
	Semester Total	**6**	
SECOND YEAR			
First Semester			
10-514-177	Assistive Technology and Adaptations	2	0-2
10-514-179	Community Practice	2	0-2
10-514-182	Physical Rehabilitation Practice	3	1-2
10-514-183	Pediatric Practice	3	1-2
10-514-184	OTA Fieldwork 1	2	1-1
	Elective*	3	3-0
	Semester Total	**15**	
Second Semester			
10-514-185	OT Practice and Management	2	1-1
10-514-186	OTA Fieldwork IIA**	5	0-20
10-514-187	OTA Fieldwork IIB**	5	0-20
	Semester Total	**12**	

* Courses which can be taken prior to entering the program.

** Courses must be completed within 18 months after completion of all other Occupational therapy courses.

*** General Anatomy & Physiology can be satisfied by taking **both** Anatomy & Physiology I & Anatomy & Physiology II.

There are part-time or 3-year curriculum plans available upon meeting with the Health Advisor or Program Director.

Unique Requirements for Admission

1) High school graduate or equivalent;
2) Two semesters of high school level or one semester of college level with a grades of C or better in the following: biology, chemistry, algebra, three to four years of English; and
3) Acceptable ACT, SAT, COMPASS or equivalent assessment test.

Program Requirements

1) Caregiver Background Check (CBC); **refer to catalog for Health & Safety Education Policy;** 2) Physical exam and a completed Health History Form on file prior to beginning fieldwork experiences involving direct client care; and 3) Essential functions for the Occupational Therapy Assistant Program.

Note: A copy of the essential functions necessary to successfully complete the program of study is available upon request from the division office.

Program Courses

10-514-171 Introduction to Occupational Therapy 3 credits
Provides an overview of history, philosophy, ethics, and scope of occupational therapy practice. Examines legal responsibilities, professional resources, and organization. Students practice basic skills related to therapeutic relationships and determine their own suitability to a career in occupational therapy. Prerequisites: Algebra, Chemistry and Biology. Corequisites: 10-514-172, 10-514-173 and 20-806-206.

10-514-172 Medical and Psychosocial Conditions 3 credits
Introduces medical and psychosocial conditions as they relate to occupational therapy practice. Topics include etiology, symptomology, treatment and contraindications. Prerequisites: Algebra, Chemistry and Biology. Corequisites: 10-514-171, 10-514-173 and 20-806-206.

10-514-173 Activity Analysis and Applications 2 credits
Provides instruction in activity analysis with hands on experience in activities across the lifespan. Students apply the teaching/learning process and adhere to safety regulations. Prerequisites: Algebra, Chemistry and Biology. Corequisites: 10-514-171, 10-514-172 and 20-806-206.

10-514-174 OT Performance Skills 4 credits
Emphasis on the development of skills related to assessment and intervention in the areas of sensory, motor, cognition and communication. Prerequisites: 10-514-171, 10-514-172, 10-514-173 and 20-806-206. Corequisites: 10-514-175, 10-514-176 and 10-514-178.

10-514-175 Psychosocial Practice 3 credits
Examines the role of the OTA in the service delivery to individuals affected by mental health conditions. Provides opportunity for development of skills related to psychosocial assessment and interventions. Prerequisites: 10-514-171, 10-514-172, 10-514-173 and 20-806-206. Corequisites: 10-514-174, 10-514-176 and 10-514-178.

10-514-176 OT Theory and Practice 3 credits
Examines the theoretical foundations that guide OT practice. Apply group dynamics and demonstrate leadership skills. Prerequisites: 10-514-171, 10-514-172, 10-514-173 and 20-806-206. Corequisites: 10-514-174, 10-514-175 and 10-514-178.

10-514-177 Assistive Technology and Adaptations 2 credits
Explores technologies that support delivery of OT services. Emphasis on competency related to computer skills, ergonomics, adaptive devices, and environments. Prerequisites: 10-514-174, 10-514-175, 10-514-176 and 10-514-178. Corequisites: 10-514-179, 10-514-182, 10-514-183 and 10-514-184.

10-514-178 Geriatric Practice 3 credits
Examines the role of the OT in the service delivery to elders in a variety of settings. Includes analysis of the impact of age-related changes and disease processes on the function of the elderly. Prerequisites: 10-514-171, 10-514-172, 10-514-173 & 20-806-206. Corequisites: 10-514-174, 10-514-175, 10-514-176.

10-514-179 Community Practice 2 credits
Explores practice options and interventions for occupation-based community practice. Students articulate the unique role of occupational therapy within the community. Prerequisites: 10-514-174, 10-514-175, 10-514-176 and 10-514-178. Corequisites: 10-514-177, 10-514-182, 10-514-183 and 10-514-184.

10-514-182 Physical Rehabilitation Practice 3 credits
Explores interventions relative to major physical disability diagnoses seen in OT practice. Evaluation, treatment interventions, and documentation are emphasized relative to the biomechanical, neurodevelopmental and rehabilitative approaches to practice. Prerequisites: 10-514-174, 10-514-175, 10-514-176 and 10-514-178. Corequisites: 10-514-177, 10-514-179, 10-514-183 and 10-514-184.

10-514-183 Pediatric Practice 3 credits
Explores interventions relative to major pediatric diagnoses seen in OT practice. Evaluation, treatment interventions, and documentation are emphasized within the context of the child's occupations. Prerequisites: 10-514-174, 10-514-175, 10-514-176 and 10-514-178. Corequisites: 10-514-177, 10-514-179, 10-514-182 and 10-514-184.

10-514-184 OTA Fieldwork I 2 credits
Integrate classroom theory and practice into a Fieldwork Level I experience. Provides experiences to assist in the development of communication, professional and observational skills. Prerequisites: 10-514-174, 10-514-175, 10-514-176 and 10-514-178. Corequisites: 10-514-177, 10-514-179, 10-514-182 and 10-514-183.

10-514-185 OT Practice and Management 2 credits
Provides opportunities to practice clinical management skills, continuous quality improvement measurement, and administrative concepts and procedures. Students create a professional development plan. Prerequisites: 10-514-177, 10-514-179, 10-514-182, 10-514-183 and 10-514-184. Corequisites: 10-514-186 and 10-514-187.

10-514-186 OTA Fieldwork 11A 5 credits
Develop skills and behaviors necessary for entry-level occupational therapy assistant practice. Provides a different clinical practice setting than OTA Fieldwork IIB. Prerequisites: 10-514-177, 10-514-179, 10-514-182, 10-514-183 and 10-514-184. Corequisites: 10-514-185 and 10-514-187.

10-514-187 OTA Fieldwork 11B 5 credits
Develop skills and behaviors necessary for entry level occupational therapy assistant practice. Provides a different clinical practice setting than OTA Fieldwork 2A. Prerequisites: 10-514-177, 10-514-179, 10-514-182, 10-514-183 and 10-514-184.

Career Potential:

- **Certified Occupational Therapy Assistant (COTA)**
- **Adult Day Care Coordinator**
- **Activities Coordinator**
- **Community Support Worker**
- **Life Skills Trainer**
- **Durable Medical Equipment Coordinator**
- **Job Coach**
- **Family Support Worker**
- **Supported Employment Specialist**

With additional education and/or work experience, graduates may find employment as:

- **Assisted Living Program Coordinator/ Manager**
- **Case Manager**
- **Community-Based Residential Facility Manager**
- **Assistive Technology Provider**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Optometric Technician

Program Number: 31-516-2

One-Year Technical Diploma

Health-Related Professions Program Cluster

Center of Health & Safety Education

Program offered at Madison Campuses

For information call: (608) 246-6065, (608) 246-6472 or (800) 322-6282 Ext. 6065 or 6472

About the Program

An optometric technician works under the supervision of an optometrist or ophthalmologist and performs:

- Patient pre-testing such as visual acuity, color vision, depth perception, pupil testing, pressure inside the eye, corneal curvature, peripheral vision and blood pressure.
- Contact lens ordering, verification and patient education. The technician may also assist the doctor in the fitting of contact lenses.
- Eyeglass selection, ordering, verification and adjustment.

Established in 1978, the Optometric Technician Program is a one-year technical diploma program that may be completed in nine months of full-time study. The program accepts new students in August.

Instructors train students to work in eye care and emphasize the unique duties required of an optometric technician to provide quality vision care services to patients. The technical training includes optometric terminology, optical properties of light, patient pretesting skills, frame and lens selection, eyeglass adjustment, contact lens patient education, ocular anatomy and physiology, visual training and practice management. Clinical experience—working directly with doctors and patients—is an important part of the curriculum.

Unique Requirements for Admission

1) High school graduate, HSED or GED; 2) satisfactory scores on the COMPASS or equivalent assessment test.

Program Requirements

1) Physical exam and completed Health History Form on file prior to beginning the clinical affiliation; and 2) written proof of Adult and Child CPR certification prior to beginning the clinical affiliation.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
31-516-325	Optical Dispensing 1	3	3-2
31-516-301	Ophthalmic Pre-Testing	3	3-3
31-516-305	Basic Optical Concepts	3	3-2
31-516-315	Ocular Anatomy	2	3-1
31-543-335	Body Structure** **OR**	2	3-0
10-501-153	Body Structure**	(3)	(3-0)
31-516-339	Human Relations **OR**	1	2-0
10-809-199	Psychology of Human Relations**	(3)	(3-0)
	Semester Total	**14**	
Second Semester			
31-516-326	Optical Dispensing 2	2	2-2
31-516-327	Clinical Ophthalmic Procedures	2	0-4
31-516-330	Contact Lenses	3	3-2
31-516-335	Ophthalmic Specialty Testing	3	3-3
31-516-340	Patient Relations and Practice Management	2	3-0
31-516-345	Preclinical	2	0-4
31-516-350	Clinical Experience*	3	0-40
	Semester Total	**17**	

* Clinical experience lasts six weeks and begins on week 15 of the second semester of study.

** Class may be taken prior to acceptance into program.

Note: A copy of the essential functions necessary to successfully complete the program of study is available upon request from the division office.

Madison Area Technical College

Optometric Technician

Program Number: 31-516-2

Program Courses

31-516-301 Ophthalmic Pre-Testing 3 credits
Covers the history of optometry, relationships between optometry, ophthalmology and opticianry and various paraprofessional careers in vision care. The course involves the study of and practical experience in patient pre-testing such as case history, visual acuity, color vision, pupil evaluation and depth perception as well as the specialized testing procedures such as keratometry and blood pressure.

31-516-305 Basic Optical Concepts 3 credits
Covers the properties of light and the function of a lens in vision correction. Included is a review of basic math needed in vision care and the physiological aspects of vision. This course begins the study of the neutralization and verification of spectacle lens powers, to include spherical, cylindrical and prism lenses.

31-516-315 Ocular Anatomy 2 credits
Familiarizes the optometric technician with the form and function of the human eye. The foundation of the lecture material is the anatomy of the eye, but we will discuss the physiology and function of the eye as much as possible. We will also discuss the actions and uses of diagnostic pharmaceutical agents, as their function is based on interference with normal ocular physiology. This course also covers optometric terminology as well as prescription translation.

31-516-325 Optical Dispensing 1 3 credits
Covers frame definition, parts and types of frames, measurement of frames and lenses, alignment of frames, inserting and removing lenses, introduction to dispensing of eyewear and frame repairs.

31-516-326 Optical Dispensing 2 2 credits
This course assists the student in developing a mastery of the alignment and adjustment of eyewear. It also covers the various lens materials, multifocal styles and lens tints. Prerequisites: 31-516-325 and 31-516-305.

31-516-327 Clinical Ophthalmic Procedures 2 credits
This course prepares the technician to assist the doctor in advanced office techniques in the area of ultrasound, in-office surgical procedures, case history and scribing. Students will also study various systemic diseases and their affect on the eye. The performance of various skills is emphasized in the laboratory sessions. Prerequisites: 31-516-315, 31-516-301, 31-516-305, Body Structure & Function

31-516-330 Contact Lenses 3 credits
Gives the student in-depth exposure to the technical aspects of clinical contact lens practice. Lecture and laboratory experiences emphasize lens verification, patient education and evaluation. Prerequisites: 31-516-301, 31-516-305 and 31-516-315.

31-516-335 Ophthalmic Specialty Testing 3 credits
Provides the student experience and knowledge in areas of special vision care procedures: subjective refraction, visual field testing, slit lamp, Goldmann and non-contact tonometry, basic concepts of orthoptics and the treatment of eye diseases including instillation of eye medications and eye patching. Patient instruction and assistance are emphasized in laboratory sessions. Prerequisites: 31-516-301, 31-516-305 and 31-516-315.

31-516-339 Human Relations 1 credit
Introduces students to their personal and vocational responsibilities as an optometric technician. The development of communication skills one needs as an optometric technician are introduced. The ethical and legal responsibilities of an optometric technician are defined. Time management techniques will be presented. Basic concepts of stress and how it affects behavior, and stress management are discussed. The course also covers writing a job application letter and resume as well as interview techniques.

31-516-340 Patient Relations and Practice Management 2 credits
Provides a study of front office management techniques including telephone and appointment book management, filing, recall systems, bookkeeping and insurance claim processing.

31-516-345 Preclinical 2 credits
Prepares students for clinical affiliation by having them complete vision screenings on patients from the college. Class discussions are held analyzing the results of the screening as well as the students' performance. Prerequisites: 31-516-301, 31-516-305 and enrollment in 31-516-335.

31-516-350 Clinical Experience 3 credits
Students participate 40 hours per week for six weeks of assigned clinical experience in an optometric or clinic setting. The student is expected to achieve specific educational objectives determined for this experience. Prerequisite: satisfactory completion of all first-semester courses plus enrollment in second-semester courses.

Required Related Course

31-543-335	Body Structure & Function	2 credits
10-501-153	Body Structure & Function	3 credits

Internet-Based Courses
Internet-based courses are available for individuals already employed in eye care. For detailed information, see the Optometric Technician program on the Madison College Website at matcmadison.edu. From the homepage, click on "Programs & Classes."

Career Potential:

- **Optometric Technician**
- **Ophthalmic Assistant**
  Person assists an optometrist or ophthalmologist in the delivery of eye care. Duties may include preliminary testing procedures, dispensing of glasses and contact lenses and front office management.
- **Dispensing Optician**
  This person specializes in the fitting and dispensing of eyewear. They may be employed by an optometrist, ophthalmologist or clinic, or own their own optical dispensary.
- **Contact Lens Technician**
  Duties may include the ordering, verification and dispensing of contact lenses. The contact lens technician may also assist the doctor in chairside techniques of fitting contact lenses.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Phlebotomy

Program Number: 90-513-1

Certificate

Health-Related Professions Cluster

Center of Health and Safety Education

Program offered at Fort Atkinson, Reedsburg and Truax Campuses

For information call: (608) 246-6065, (608) 246-6459 or (800) 322-6282 Ext. 6065 or 6459

About the Program
The phlebotomy training certificate at Madison College consists of two 2-credit courses. Students are required to take both courses. Completion of Phlebotomy training is a career pathway to the Clinical Laboratory Technician program.

Important Information related to the Certificate
Students can anticipate spending at least 6 hours per week above and beyond scheduled class time to study the course material and complete required assignments.

Students are placed in clinical rotations during daytime hours only due to limited instructional personnel during evening and night hours.

Students must have the transportation means to travel outside the immediate Madison area for clinical rotation sites if required.

Certificate Requirements
High school graduation, HSED, or GED with C or better average. You will be required to provide proof in the form of a high school transcript or other official document, upon registration for the classes.

Acceptable score on the COMPASS assessment of Pre-Alg 50, Reading 80 & Writing 70. (See the Frequently Asked Questions section of this document for information about COMPASS testing.)

Computer literacy and keyboarding skills

Curriculum

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-513-100	Introduction to Phlebotomy	2	1-2
10-513-154	Phlebotomy Techniques	2	0-4
	Semester Total	**4**	

Program Courses

10-513-100 Introduction to Phlebotomy 2 credits
Key topics addressed in Introduction to Phlebotomy include safety and infection control, basic laboratory skills (pipetting, laboratory glassware, microscopy, weight measurements, and metric conversion), basic laboratory tests (waived testing and point of care testing), laboratory specimen requirements, specimen handling and processing, special topics related to the healthcare setting (e.g., professionalism, ethics, patient confidentiality, and legal issues), and medical terminology. In addition, students are introduced to the health care setting and the role of the phlebotomist. This course is a prerequisite for Phlebotomy Techniques. Students must achieve a grade of C or better before they will be allowed to proceed to Phlebotomy Techniques.

10-513-154 Phlebotomy Techniques 2 credits
In Phlebotomy Techniques, students develop the skills required to perform successful blood collection techniques, including venipuncture and capillary puncture. The highlight of this course is a 45-hour clinical experience that provides students the opportunity to apply the skills they learned in the classroom. The clinical experience occurs during daytime hours. The exact time of the clinical experience varies, depending on which clinical site a student is given. Students must be available to complete their clinical experience during the scheduled daytime hours.

Health History Form

Students must meet the requirements specified on the Madison College Health History form (PDF). This can be found on our website: matcmadison.edu, click A-Z index, click H for Health forms, click the "Health History Form (pdf)" link. A completed form must on file at Madison College by the first week of class. Failure to comply with this policy will result in immediate dismissal from the certificate. Because of the nature of the clinical experiences, it is strongly recommended that students be immunized against hepatitis B. Students who do not receive the vaccine will be required to sign a waiver indicating their decisions to decline the vaccine.

Caregiver Background Check

As required by Wisconsin law, any student who has access to patients during a clinical experience must undergo a Caregiver Background Check. Based upon the information disclosed by the student or revealed by the background check, additional research, including a request for information related to out-of state residence, may need to be conducted. Any additional costs incurred by conducting this research will be the responsibility of the student. As required by law, all information obtained by the background check process must be released to the student's clinical sites. The discovery of a criminal history may bar a student from participating in the clinical training and gaining employment as a phlebotomist. The Background Information Disclosure form can be found at: http://dhfs.wisconsin.gov/forms/HFS/HFS0064.pdf . If you have questions regarding how a criminal history will affect your participation in this class career please contact: (800) 322-6282, ext. 6459 or (608) 246-6459.

Health Insurance Coverage

Due to the inherent risk of exposure to harmful agents, students in the phlebotomy training certificate are required to have health insurance. A low cost insurance plan covering accident and illness is available to students through Madison College at the student's expense.

Cost

The total cost for the certificate for Wisconsin residents, including tuition, books, and laboratory fee, is approximately $750 for the 08/09 school year. The breakdown of the cost is as follows:

Resident tuition and general fees for 4 credits at Madison College:
- Approximately $550
- Books: Approximately $150
- Laboratory fee: $30
- Name tag: $8

Additional expenses that may be incurred by the student include:
- Costs related to the physical exam required for completion of the Health History form
- Transportation and parking for clinical sites
- Costs related to health insurance coverage during clinical training

Frequently Asked Questions

What skills and abilities are needed to be successful as a phlebotomist?

- Ability to work and communicate with others
- Ability to work effectively as a member of a team
- Ability to work under pressure and to follow directions accurately and precisely
- Capacity for calm and reasoned judgment
- Knowledge and skills to interact with diverse patient populations
- Fine motor skills to manipulate needles and blood drawing equipment.

What is the COMPASS test and how do I take it?

The COMPASS test is a placement test for students planning on taking degree credit classes at Madison College. The results of the COMPASS test will be used to determine if you possess the requisite basic knowledge and skills required to be successful in the phlebotomy training certificate.

Additional information about the COMPASS test is available online at matcmadison.edu or you may call (608)246-5220.

What other information will I receive upon being registered into the courses?

- Madison College Health History form
- Information on how to obtain a name tag
- Laboratory dress code requirements
- Background Information Disclosure form
- Student Information form
- Information on health insurance coverage

Upon receiving this information, you should read it carefully and comply with any special program requirements and deadlines. Failure to do so will result in dismissal from the certificate.

Will Madison College offer assistance in finding a job?

Students in the Phlebotomy Training certificate can utilize the job placement services of the Madison College Placement Office to gain knowledge of available jobs. Information about these services will be given to you in class.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Physical Therapist Assistant

Program Number: 10-524-1

Associate in Applied Science Degree

Health-Related Professions Program Cluster

Center of Health & Safety Education

Program offered at Madison Campuses

For information call: (608) 246-6065 or (800) 322-6282 Ext. 6065

About the Program

Physical therapy is a health profession with the primary purpose of promoting optimal human health and function through the application of scientific principles to prevent, identify, assess, correct, or alleviate acute or prolonged movement dysfunction. The physical therapist assistant (PTA) is a technical health care worker who carries out patient treatments under the supervision of a physical therapist. PTAs find employment in clinics, hospitals, nursing homes, rehabilitation centers, home care agencies, schools, private health and fitness centers, and other settings.

Physical therapist assistants work under the supervision of a physical therapist. Their duties include: assisting the physical therapist with treatment programs according to the plan of care; training patients in exercises and activities of daily living; conducting treatments; using special equipment; administering modalities and other treatment procedures; and reporting to the physical therapist about the patient's responses.

Accreditation/Credentialing

Madison Area Technical College is seeking accreditation by the Commission on Accreditation in Physical Therapy Education (CAPTE) of the American Physical Therapy Association (1111 North Fairfax Street, Alexandria, VA 22314; phone 703-706-3245; accreditation@apta.org). The program will submit an Application for Candidacy, which is the formal application required in the pre-accreditation stage. Submission of this document does not assure that the program will be granted Candidate for Accreditation status nor does it assure that the program will be granted Accreditation.

Application Process

To apply for the program, students must submit an application, online or paper. A $30 application fee (if not previously paid) plus $5 online fee, high school transcripts or GED/HSED scores, all college transcript(s) and COMPASS/ASSET test scores.

Unique Requirements for Admission

The applicant will be expected to have better than average grades. An acceptable COMPASS, ACT, SAT, or ASSET test is required. Applicants must have successfully completed with a grade of C or better, two high school semesters or one college semester of chemistry and biology and have Algebra competency demonstrated with satisfactory testing within 2 years prior to applying.

Program Requirements

1) CPR Health Care Provider certification
2) Caregiver Background Check (CBC)
3) physical exam and a completed Health History Form on file prior to beginning clinical experiences involving direct client care.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR		Credits	Hrs/week Lec-Lab
First Semester			
10-806-177	General Anatomy and Physiology ** **OR**	4	5-4
20-806-206	General Anatomy and Physiology **	(4)	(5-4)
10-801-195	Written Communication * **OR**	3	3-0
20-801-201	English 1 *	(3)	(3-0)
10-524-138	PTA Kinesiology 1	3	2-2
10-524-139	PTA Patient Interventions	4	2-4
10-524-140	PTA Professional Issues 1	2	2-0
	Semester Total	**16**	
Second Semester			
10-801-198	Speech * **OR**	3	3-0
20-810-201	Fund of Speech *	(3)	(3-0)
10-809-197	Contemporary American Society ***OR**	3	3-0
20-809-203	Intro to Sociology *	(3)	(3-0)
10-524-141	PTA Kinesiology 2	4	2-4
10-524-142	PTA Therapeutic Exercise	3	1-4
10-524-143	PTA Therapeutic Modalities	4	2-4
	Semester Total	**17**	
Summer Semester			
20-809-266	Ethics in Medicine *	3	3-0
20-809-231	Intro to Psychology *	3	3-0
10-809-188	Developmental Psychology * **OR**	3	3-0
20-809-233	Developmental Psychology *	(3)	(3-0)
	Semester Total	**9**	
SECOND YEAR			
First Semester			
10-524-144	PTA Princ of Neuro Rehab	4	2-4
10-524-145	PTA Princ of Musculo Rehab	4	2-4
10-524-146	PTA Cardio & Integ Mgmt	3	1-4
10-524-147	PTA Clinical Practice 1	2	0-40#
	Semester Total	**13**	
Second Semester			
10-524-148	PTA Clinical Practice 2	3	0-40#
10-524-149	PTA Rehab Across the Lifespan	2	2-0
10-524-150	PTA Professional Issues 2	2	2-0
10-524-151	PTA Clinical Practice 3	5	0-40#
	Elective	3	3-0
	Semester Total	**15**	

* Courses which may be taken prior to entering the program. May also be taken at the College-Transfer level. Must have C's or better to transfer. A copy of the essential functions necessary to successfully complete the program of study & a copy of the program's mission statement and strategic plan is available from the website.

Full-time Clinical Work Experience

** Satisfactorily completion of Anatomy & Physiology prior to application or while on the waiting list qualifies for priority admission into the program on a space available basis.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Program Courses

10-524-138 PTA Kinesiology 1 3 credits
Introduces basic principles of musculoskeletal anatomy, kinematics, and clinical assessment. Students locate and identify muscles, joints, and other landmarks of the lower quadrant in addition to assessing range of motion and strength. Pre-requisite: Admission requirements for the program & 20-806-206. Co-requisites: 10-524-139 & 10-524-140

10-524-139 PTA Patient Interventions 4 credit
An introduction to basic skills and physical therapy interventions performed by the physical therapist assistant. Pre-requisite: Admission requirements for the program & 20-806-206. Co-requisites: 10-524-138 & 10-524-140

10-524-140 PTA Professional Issues 1 2 credit
Introduces the history and development of the physical therapy program; legal and ethical issues; the interdisciplinary health care team; and professional communication skills. Pre-requisite: Admission requirements for the program & 20-806-206. Co-requisites: 10-524-138 & 10-524-139

10-524-141 PTA Kinesiology 2 4 credit
Applies basic principles from PTA Kinesiology 1 to the axial skeleton and upper quadrant including location and identification of muscles, joints and other landmarks. Assess range of motion and strength of the axial skeleton and upper quadrant. Integrate analysis of posture and gait. Pre-requisites: 10-524-138, 10-524-139 & 10-524-140. Co-requisites: a10-524-142 & 10-524-143

10-524-142 PTA Therapeutic Exercise 3 credit
Provides instruction on the implementation of a variety of therapeutic exercise principles. Learners implement, educate, adapt, and assess responses to therapeutic exercises. Pre-requisites: 10-524-138, 10-5224-139 & 10-524-140. Co-requisites: 10-524-141 & 10-524-143.

10-524-143 PTA therapeutic Modalities 4 credits
Develops the knowledge and technical skills necessary to perform numerous therapeutic modalities likely to be utilized as a PTA. Pre-requisites: 10-524-138, 10-5224-139 & 10-524-140. Co-requisites: 10-524-141 & 10-524-142.

10-524-144 PTA Princ of Neuro Rehab 4 credits
Integrates concepts of neuromuscular pathologies, physical therapy interventions, and data collection in patient treatment. Pre-requisites: 10-524-141, 10-524-142 & 10-524-143. Co-requisites: 10-524-145, 10-524-146 & 10-524-147.

10-524-145 PTA Princ of Musculo Rehab 4 credits
Integrates concepts of musculoskeletal pathologies, physical therapy interventions, and data collection in patient treatment. Pre-requisites: 10-524-141, 10-524-142 & 10-524-143. Co-requisites: 10-524-144, 10-524-146 & 10-524-147.

10-524-146 PTA Cardio & Integ Mgmt 3 credits
Integrates concepts of cardiopulmonary and integumentary pathologies, physical therapy interventions, and data collection in patient treatment. Pre-requisites: 10-524-141, 10-524-142 & 10-524-143. Co-requisites: 10-524-144, 10-524-145 & 10-524-147.

10-524-147 PTA Clinical Practice 1 2 credits
Provides a part-time clinical experience to apply foundational elements, knowledge, and technical skills pertinent to physical therapy practice. Pre-requisites: 10-524-141, 10-524-142 & 10-524-143. Co-requisites: 10-524-144, 10-524-145 & 10-524-146.

10-524-148 PTA Clinical Practice 2 3 credits
Provides another part-time clinical experience to apply foundational elements, knowledge, and technical skills required of the entry level physical therapist assistant in various practice settings. Pre-requisites: 10-524-145, 10-524-146 & 10-524-147. Co-requisites: 10-524-149, 10-524-150 & 10-524-151.

10-524-149 PTA Rehab Across the Lifespan 2 credits
A capstone course that integrates concepts of pathology, physical therapy interventions and data collection across the lifespan. In addition the PTA's role in health, wellness and prevention; reintegration, and physical therapy interventions for special patient populations will be addressed. Pre-requisites: 10-524-144, 10-524-145, 10-524-146 & 10-524-147. Co-requisites: 10-524-148, 10-524-150 & 10-524-151.

10-524-150 PTA Professional Issues 2 2 credits
Incorporates professional development, advanced legal and ethical issues, healthcare management and administration, and further development of professional communication strategies. Pre-requisites: 10-524-144, 10-524-145, 10-524-146 & 10-524-147. Co-requisites: 10-524-148, 10-524-149 & 10-524-151.

10-524-151 PTA Clinical Practice 3 5 credits
Provides a full-time clinical experience to apply foundational elements, knowledge, and technical skills required of the entry level physical therapist assistant in various practice settings. Pre-requisites: 10-524-144, 10-524-145, 10-524-146 & 10-524-147. Co-requisites: 10-524-148, 10-524-149 & 10-524-150. Pre/Co-requisites: all required general education classes.

Career Potential:

- **Physical Therapist Assistant**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Effective: 2010-2011

Polysomnography

Program Number: 80-515-1

Advanced Technical Certificate

Health-Related Professions Program Cluster

Center of Health & Safety Education

Program offered at Madison Campuses

For information call: (608) 246-6065, (608) 246-6698 or (800) 322-6282 Ext. 6065 or 6698

About the Certificate

This advanced technical certificate is designed to prepare health care professionals to work in Polysomnography (sleep) laboratories. Polysomnography is the study of sleep patterns and abnormalities. Students study electro-encephalography (EEG), the study of the electrical activity of the brain; electroculography (EOG), the study of the electrical activity of the eye; and electromyography (EMG), the study of the electrical activity of muscles. This certificate also includes electrocardiology (ECG), the study of the electrical activity of the heart as well as the effects of sleep on the respiratory system.

Students learn to: perform diagnostic procedures to help identify sleep-related disorders, operate state-of-the-art medical equipment for both diagnosis and treatment of sleep-related disorders, compile and analyze (score) information from an overnight sleep study, educate patients and their families about sleep disorders and treatments, identify normal and abnormal patterns of sleep/wake states and explore the neurological and cardiopulmonary systems.

Unique Requirements for Admission

Must be a graduate of one of the following accredited programs: Respiratory Therapist, Registered Nurse, Practical Nurse, Paramedic or have a minimum of an Associate of Applied Science degree with evidence of Human Anatomy classes. Must have current two-person, infant through adult CPR certification and a current Physical examination prior to classes beginning. This program curriculum has been designated by the Board of Registered Polysomnographic Technologist (BRPT) as an alternative educational pathway for purposed of establishing registry eligibility.

Career Potential:

- **Sleep Researcher**
- **Polysomnography (Sleep) Technician**

Curriculum

Courses		Credits	Hrs/week Lec-Lab
10-515-140	Introduction to Polysomnography	2	6-0
10-515-141	Polysomnography Fundamentals 1	2	6-0
10-515-142	Polysomnography Fundamentals 2	2	6-0
10-515-144	Polysomnography Clinical Practice 1	1	0-8
10-515-145	Polysomnography Clinical Practice 2	2	2-8
	Total	**9**	

Courses

10-515-140 Introduction to Polysomnography 2 credits
An overview of the field of Polysomnography including job responsibilities, normal and abnormal sleep patterns, and integrating the physiologic functions of the nervous, respiratory, cardiovascular systems and common sleep disorders. Emphasis placed on basic sleep sciences, neurophysiology, monitoring, electrical safety, diagnosis and treatment methods including CPAP, BiPAP, Oxygen therapy and surgical interventions. This course runs six hours a week for six weeks.

10-515-141 Polysomnography Fundamentals 1 2 credits
A basic discussion of recording sleep apnea. Patient setup, electrode application for overnight recordings, the sleep history and the technologists' assessment of the patient are discussed in detail with emphasis on instrument settings and calibration, recording parameters and an introduction to commonly used ancillary equipment. This course runs six hours a week for six weeks.

10-515-142 Polysomnography Fundamentals 2 2 credits
Presentation and discussion of the techniques of sleep staging. Respiratory event scoring, movement and arousal scoring criteria are also outlined. Covers recognition of normal and abnormal sleep patterns, effects of medication on sleep patterns, respiratory patterns and movement and arousal patterns, along with criteria for recognition of EKG and EEG abnormalities. Introduces the student to the major categories of sleep disorders in the infant and pediatric patient, provides an overview of the specific polysomnographic features and the special preparation needed in these populations. This course runs six hours a week for six weeks.

10-515-144 Polysomnography Clinical Practice 1 1 credit
Directed practice in the clinical setting in a sleep laboratory or a sleep center. Emphasis in overseeing periodic cessation of respiratory activity based on placement and monitoring of the following: electro-encephalography (EEG), electro-oculography (EOG), electrocardiography (ECG), electromyography (EMG), pulse oximetry (SpO2), inductive plethysmography and airflow thermocouple. Can be taken concurrently with 10-515-141.

10-515-145 Polysomnography Clinical Practice 2 2 credits
Directed practice in the clinical setting in a sleep laboratory or a sleep center. Assist in adult and pediatric patient setup and discontinuance in monitoring complete sleep studies. Emphasis on scoring a sleep montage related to respiratory cessation. This course can be taken concurrently with 10-515-142.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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MADISON AREA TECHNICAL COLLEGE

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Madison Area Technical College

Effective: 2010-2011

Radiography

Program Number: 10-526-1

Associate in Applied Science Degree

Health-Related Professions Program Cluster

Center of Health & Safety Education

Program offered at Downtown Madison Campus

For information call: (608) 246-6065, (608) 259-2902 or (800) 322-6282 Ext. 6065 or 2902

About the Program

The radiographer is the producer of medical images for diagnosis of disease. Duties include: positioning of patient to obtain proper projection, aligning source (usually x-radiation), making exposure factor selections, processing the image, storing and retrieving images.

Graduates are eligible to take the entry-level certification examination and are employable in radiology and medical-imaging departments in hospitals and clinics. Radiographers should be able to follow instructions carefully and work to prescribed standards, able to use good judgment in following procedures and handling problems, interested in work of a technical or scientific nature, and willing and able to work under pressure in emergency situations.

Note: For clinical courses, assignments to nontraditional shifts are made to increase and diversify patient exam experiences. Students are assigned to clinical affiliations in Madison and southern Wisconsin.

Application Process

To apply for the program, students must submit a complete application packet. A completed packet consists of the completed application form, $30 application fee (if not previously paid), $5.00 online fee, high school transcripts or GED/ HSED test scores, college transcript(s) and COMPASS, ASSET, ACT or SAT test scores.

Unique Requirements for Admission

1) high school graduation or equivalent;
2) successful completion of two semester at the high school level or one semester at the college level with a grade of C or better in the following areas: algebra, geometry and chemistry/ physics; and
3) a satisfactory score on the COMPASS, ASSET, ACT or SAT.

Program Requirements

1) Caregiver Background Check (CBC); refer to catalog for Health, Human and Protective Services Policy;
2) Physical exam and a completed Health History Form on file prior to beginning clinical training;
3) Essential functions for the Radiography Program; and
4) Recommend meeting with the program director; and
5) CPR advanced certification.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
Pre-Radiography course:		**Credits**	**Lec-Lab**
10-806-177	General Anatomy and Physiology * **OR**	(4)	(5-4)
20-806-206	General Anatomy and Physiology *	4	5-4
	Semester Total	**4**	
First Semester			
10-526-149	Radiographic Procedures 1	5	5-0
10-526-158	Introduction to Radiography	3	2-0
10-526-159	Radiographic Imaging 1	3	3-0
10-526-168	Radiography Clinical 1	2	0-12
10-804-107	College Math	3	3-0
	Semester Total	**16**	
Second Semester			
10-526-170	Radiographic Imaging 2	3	3-0
10-526-191	Radiographic Procedures 2	5	5-0
10-526-192	Radiography Clinical 2	3	0-12
10-801-195	Written Communication * **OR**	3	3-0
20-801-201	English Composition 1 *	(3)	(3-0)
	Semester Total	**14**	
Summer Semester			
10-526-193	Radiography Clinical 3	3	0-32
	Semester Total	**3**	
SECOND YEAR			
First Semester			
10-526-194	Imaging Equipment Operation	3	4-0
10-526-195	Radiographic Quality Analysis	2	2-0
10-526-196	Modalities	3	1-0
10-526-199	Radiography Clinical 4	3	0-12
10-801-196	Oral/Interpersonal Communications * **OR**	(3)	3-0
20-810-201	Fundamental of Speech *	3	3-0
20-809-231	Introduction to Psychology *	3	(3-0)
	Semester Total	**17**	
Second Semester			
10-526-189	Radiographic Pathology	1	1-0
10-526-190	Radiography Clinical 5	2	0-24
10-526-197	Radiation Protection & Biology	3	3-0
10-809-197	Contemporary American Society * **OR**	3	3-0
20-809-203	Introduction to Sociology *	(3)	(3-0)
20-809-233	Developmental Psychology * **OR**	3	3-0
20-809-235	Psychology of Personal Adjustment * **OR**	(3)	(3-0)
20-809-236	Applied Psychology * **OR**	(3)	(3-0)
20-809-238	Health Psychology *	(3)	(3-0)
	Semester Total	**12**	
Summer Semester			
10-526-174	ARRT Certification Seminar	2	0-24
10-526-198	Radiography Clinical 6	2	0-24
	Semester Total	**4**	

* Courses which may be taken prior to entering the program. Courses may also be taken at the College-Transfer level. Must have C's or better to transfer. A copy of the essential functions necessary to successfully complete the program of study & a copy of the program's mission statement and strategic plan is available from the website.

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Program Courses

10-526-149 Radiographic Procedures 1 5 credits
Prepares radiography students to perform routine radiologic procedures on various parts of the body including the upper body, hip, pelvis and ankle. Students apply knowledge of human anatomy to position the patient correctly to achieve the desired result. Prerequisites: General A& P, Radiography prerequisites and concurrent enrollment in: 10-526-150, 10-526-158, 10-526-159 and 10-526-168.

10-526-158 Introduction to Radiography 3 credits
Introduces students to the role of radiography in health care. Students apply legal and ethical considerations to patient care and pharmacology in the radiologic sciences. Prerequisites: General A&P, Radiography prerequisite and concurrent enrollment in: 10-526-150, 10-526-149, 10-526-159 and 10-526-168.

10-526-159 Radiographic Imaging 1 3 credits
Introduces radiography students to the process of creating radiographic images. Students determine the factors that affect image quality including contrast, density, and distortion. Students apply OSHA standards for health and safety in the darkroom. Prerequisites: General A&P, Radiography prerequisite and concurrent enrollment in: 10-526-150, 10-526-149, 10-526-158 and 10-526-168.

10-526-168 Radiography Clinical 1 2 credits
This beginning level clinical course prepares radiography students to perform radiologic procedures on patients with extensive supervision and direction. Students apply radiation protection and standard precautions in the production of radiographs in a health care setting while adhering to legal and ethical guidelines. An emphasis of the course is the development of communication and critical thinking skills appropriate to the clinical setting. Prerequisites: General A&P, Radiography prerequisite and concurrent enrollment in: 10-526-150, 10-526-149, 10-526-158 and 10-526-159.

10-526-170 Radiographic Imaging 2 3 credits
Prepares radiography students to apply advanced radiographic principles to the production of radiographic images. Students analyze exposure factor considerations, differentiate between film and exposure latitude, and use beam restricting devices. Prerequisites: All first semester classes and concurrent enrollment in: 10-526-191, 10-526-172 and 10-526-192.

10-526-174 ARRT Certification Seminar 2 credits
Provides preparation for the for the national certification examination prepared by the American Registry of Radiologic Technologists. Emphasis is placed on the weak areas of the individual students. Simulated registry examinations are utilized. Prerequisites: All fourth semester classes and concurrent enrollment in: 10-526-198.

10-526-189 Radiographic Pathology 1 credit
Prepares radiography students to determine the basic radiographic manifestations of pathological conditions. Students classify trauma related to site, complications, and prognosis and locate the radiographic appearance of pathologies. Prerequisites: All first, second & third semester classes and 10-526-193. Concurrent enrollment in: 10-526-190 and 10-526-197.

10-526-190 Radiography Clinical 5 2 credits
This fifth level clinical course prepares radiography students to perform radiologic procedures on patients with some supervision. Students apply radiation protection and standard precautions in the production of radiographs in a health care setting while adhering to legal and ethical guidelines. Students are encouraged to demonstrate independent judgment in the performance of clinical competencies. Prerequisites: All first, second & third semester classes and 10-526-193. Concurrent enrollment in: 10-526-189 and 10-526-197.

10-526-191 Radiographic Procedures 2 5 credits
Prepares radiography students to perform routine radiologic procedures on various parts of the body including the skull and spine. Students apply knowledge of human anatomy to position the patient correctly to achieve the desired result. Prerequisites: All first semester classes and concurrent enrollment in: 10-526-170, 10-526-172 and 10-526-192.

10-526-192 Radiography Clinical 2 3 credits
This second level clinical course prepares radiography students to perform radiologic procedures on patients with extensive supervision and direction. Students apply radiation protection and standard precautions in the production of radiographs in a health care setting while adhering to legal and ethical guidelines. An emphasis of the course is the development of communication and critical thinking skills appropriate to the clinical setting. Prerequisites: All first semester classes and concurrent enrollment in: 10-526-170, 10-526-191 and 10-526-172.

10-526-193 Radiography Clinical 3 3 credits
This third level clinical course prepares radiography students to perform radiologic procedures on patients with supervision and direction. Students apply radiation protection and standard precautions in the production of radiographs in a health care setting while adhering to legal and ethical guidelines. An emphasis of the course is the demonstration of communication and critical thinking skills appropriate to the clinical setting. Prerequisites: All first & second semester classes.

10-526-194 Imaging Equipment Operation 3 credits
Introduces radiography students to the principles and application of x-ray technology. Students analyze how x-rays are produced and determine the corrective actions necessary for common equipment malfunctions. Prerequisites: All first & second semester classes and 10-526-193. Corequisites: 10-526-195, 10-526-196 and 10-526-199.

10-526-195 Radiographic Quality Analysis 2 credits
Prepares radiography students to analyze radiographic images for quality. Students apply quality control tests to determine the causes of image problems including equipment malfunctions and procedural errors. Prerequisites: All first & second semester classes and 10-526-193. Concurrent enrollment in: 10-526-194, 10-526-195, 10-526-196 and 10-526-199.

10-526-196 Modalities 3 credits
Introduces radiography students to other types of imaging including ultrasound, MRI, mammography, and bone density scans. Students analyze the role of various imaging technologies in health care. Prerequisites: All first & second semester classes and 10-526-193. Concurrent enrollment in: 10-526-194, 10-526-195 and 10-526-199.

10-526-197 Radiation Protection & Biology 3 credits
Prepares radiography students to protect themselves and others from exposure to radioactivity. Students examine the characteristics of radiation and hoe radiation affects cell biology. Students apply standards and guidelines for radiation exposure. Prerequisites: All first, second & third semester classes and 10-526-193. Concurrent enrollment in: 10-526-189 and 10-526-190.

10-526-198 Radiography Clinical 6 2 credits
This final clinical course requires students to integrate and apply all knowledge learned in previous courses to the production of high quality radiographs in the clinical setting. Students apply radiation protection and standard precautions in the production of radiographs in a health care setting while adhering to legal and ethical guidelines. Students are encouraged to demonstrate independent judgment in the performance of clinical competencies. Prerequisites: All previously listed classes.

10-526-199 Radiography Clinical 4 5 credits
This fourth level clinical course prepares radiography students to perform radiologic procedures on patients with supervision and direction. Students apply radiation protection and standard precautions in the production of radiographs in a health care setting while adhering to legal and ethical guidelines. Students are encouraged to demonstrate independent judgment in the performance of clinical competencies. Prerequisites: All first & second semester classes and 10-526-193. Corequisites: 10-526-194, 10-526-195 and 10-526-196.

Career Potential:

- **Radiographer**

With additional education and/or work experience, graduates may find employment as:

- **Bone Densitomitrist**
- **CT Technologist**
- **MRI Technologist**
- **Mammographer**
- **Special Procedures Technologist**
- **Radiation Therapy Technologist**
- **Nuclear Medicine Technologist**
- **Ultrasound (Sonographer)**
- **Equipment Sales Representative**
- **Educator**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Madison Area Technical College

Respiratory Therapist

Effective: 2010-2011

Program Number: 10-515-1

Associate in Applied Science Degree

Health-Related Professions Program Cluster

Center of Health & Safety Education

Program offered at Madison Campuses

For information call: (608) 246-6065, (608) 246-6698 or (800) 322-6282 Ext. 6065 or 6698

About the Program

Respiratory therapists are members of a team of health care professionals working in a wide variety of clinical settings. They evaluate, treat and manage patients of all ages with respiratory and cardiopulmonary disease. Working with physicians, respiratory therapists are involved in clinical decision-making and patient education. Respiratory therapists work primarily in hospital settings providing and assessing the clinical status of patients and performing diagnostic testing. Therapists work in emergency rooms and intensive care units, participating in life support activities, such as airway care, mechanical ventilation and resuscitation efforts. Respiratory therapists may also work in diagnostic labs, such as a pulmonary function or sleep labs. They also work in home care and clinic settings.

This program is accredited by the Commission on Accreditation for Respiratory Care (CoARC) http://www.coarc.com; 1248 Harwood Road; Bedford, Texas 76021-4244; (817) 283-2835

As an advanced-level respiratory therapist program, graduates are eligible to become Registered Respiratory Therapists. (RRT)

Insert Note: Convictions of crimes or pending charges may be grounds for denial of license if the circumstances of the conviction or charge are substantially related to professional practice. Applicants should check the following website for more information: www.dhfs.state.wi.us/caregiver or call (608) 266-5764 or contact Department of Regulation and Licensing of the State of Wisconsin.

Unique Requirements for Admission

1) High school graduation or equivalent; 2) Two semester of high school level or one semester of college level courses with grades of C or better in the following areas: Algebra and Chemistry; and 3) ACT, SAT, COMPASS, ASSET or equivalent assessment test (this requirement may be waived if applicant has successfully completed two years of full-time college study). Students who have not completed two years of high school math or a year of high school chemistry may still be eligible to apply for a fall admission by completing an Elementary Algebra and/or General Chemistry course through a local technical college with grade(s) of C or better.

Program Requirements

1) Caregiver Background Check (CBC); refer to catalog for this Health, Human and Protective Services Policy; 2) Physical exam and completed Health History Form on file prior to beginning the clinical affiliation; and 3) Essential functions for the Respiratory Care Practitioner Program.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-515-170	Respiratory Therapy Survey	4	4-0
10-801-195	Written Communications * **OR**	3	3-0
10-801-201	English Composition 1*	(3)	(3-0)
10-501-101	Medical Terminology *	3	3-0
20-806-206	General Anatomy and Physiology* #	4	3-2
10-806-134	General Chemistry * **OR**	4	4-0
20-806-201	General Org. & Bio Chemistry	(5)	(4-2)
	Semester Total	**18**	
Second Semester			
20-806-273	Microbiology*	4	2-2
10-515-171	Respiratory Therapeutics 1 (9 wk)	3	4-4
10-515-172	Respiratory Therapeutics 2 (9 wk)	3	4-4
10-515-173	Respiratory Pharmacology	3	3-0
10-515-174	Respiratory and Circulatory Physiology	3	3-0
	Semester Total	**16**	
Interim			
10-515-175	Respiratory Therapy Clinical Practice 1	2	0-36
	Semester Total	**2**	
Summer			
10-801-198	Speech* **OR**	3	3-0
20-810-201	Fundamentals of Speech* **OR**	(3)	(3-0)
10-801-196	Oral/Interpersonal Communication* **OR**	(3)	(3-0)
20-801-202	English Composition 2*	(3)	(3-0)
	Semester Total	**3**	
SECOND YEAR			
First Semester			
10-515-176	Respiratory Disease	3	3-0
10-515-177	Respiratory Life Support Technology	4	3-2
10-515-178	Respiratory Therapy Clinical Practice 2 (9 wk)	3	0-18
10-515-179	Respiratory Therapy Clinical Practice 3 (9 wk)	3	0-18
10-809-197	Contemporary American Society* **OR**	3	3-0
20-809-203	Introduction to Sociology*	(3)	(3-0)
	Semester Total	**16**	
Second Semester			
10-515-180	Respiratory Neonatal and Pediatric Care	2	2-0
10-515-181	Respiratory & Circulatory Diagnostics & Monitoring	3	2-1
10-515-182	Respiratory Therapy Clinical Practice 4/ ACLS (9 wk)	3	0-18
10-515-183	Respiratory Therapy Clinical Practice 5 (9 wk)	3	0-18
10-515-138	Neonatal pediatric Resuscitation (NRP)	1	1-0
10-809-199	Psychology of Human Relations* **OR**	3	3-0
20-809-231	Introduction to Psychology*	(3)	(3-0)
	Semester Total	**14**	

* Courses which may be taken prior to entering the program. May be taken at the college transfer level or Associate Degree level.

\# If 20-806-207 Anatomy and Physiology 1 & 20-806-208, Anatomy and Physiology 2 are both taken, it will take the place of General Anatomy & Physiology.

Note: A copy of the essential functions necessary to successfully complete the program of study is available on the web site.

MADISON AREA TECHNICAL COLLEGE

Real world smart.

Program Courses

10-515-138 Neonatal Pediatric Resuscitation (NRP) 1 credit
Provides the student with the theory and skills needed to provide resuscitation to infants and children.

10-515-170 Respiratory Therapy Survey 4 credits
Examines the role of the Respiratory Therapist within the healthcare community. Reviews the ethical, legal, and regulatory principles that guide practice across diverse populations. Introductory patient assessment and critical thinking processes used in the development of respiratory care plans are explored. Corequisites: 20-806-206 and 10-806-134.

10-515-171 Respiratory Therapeutics 1 3 credits
Introduces the topics of medical gas administration and humidity and aerosol therapy. The learner will apply physics, math and patient assessment concepts to oxygen, aerosol and humidity therapy. Prerequisite: 10-515-170. Corequisites: 10-515-172, 10-515-173 and 10-515-174.

10-515-172 Respiratory Therapeutics 2 3 credits
Introduces therapeutic procedures including arterial puncture, bronchial hygiene, lung expansion therapy, and pulmonary rehabilitation. Corequisites: 10-515-171, 10-515-173 and 10-515-174.

10-515-173 Respiratory Pharmacology 3 credits
Examines basic pharmacology principles, drug dosage, and calculations. Medications for inhalation including mucolytics, bronchodilators, and anti-inflammatories. Also includes cardiac drugs, anesthetic drugs, neuromuscular blockers, and antimicrobials. Corequisites: 10-515-171, 10-515-172 and 10-515-174.

10-515-174 Respiratory & Circulatory Physiology 3 credits
Provides the student with an in-depth knowledge of the structure and function of the respiratory and circulatory systems necessary to function as a competent Respiratory Therapist. Corequisites: 10-515-171, 10-515-172 and 10-515-173.

10-515-175 Respiratory Therapy Clinical Practice 1 2 credits
Introduces respiratory Therapy practice in the hospital setting. Includes the development of skills such as basic therapeutics, patient assessment, medical record review, safety practices, patient interaction, and communication. Prerequisite: 10-515-173.

10-515-176 Respiratory Disease 3 credits
Exploration of signs, symptoms, causes, progression, and treatment of obstructive, restrictive and infectious diseases or disorders of the body that affect the respiratory system. Prerequisite: 10-515-175. Corequisites: 10-515-177, 10-515-178 and 10-515-179.

10-515-177 Respiratory Life Support Technology 4 credits
Focuses on adult respiratory critical care including management of mechanical ventilation and artificial airways. Prerequisite: 10-515-175. Corequisites: 10-515-176, 10-515-178 and 10-515-179.

10-515-178 Respiratory Therapy Clinical Practice 2 3 credits
Continued development of Respiratory Therapy clinical skills including respiratory therapeutics. Focuses on monitoring, analyzing and interpreting data to make appropriate modifications in patient care. This course includes the complete program competency list. At the completion of this clinical, learners must demonstrate competence in a minimum of 12 (required and/or simulated) competencies. The instructor may identify specific competencies to be addressed during this clinical. Prerequisite: 10-515-175. Corequisites: 10-515-176, 10-515-177 and 10-515-179.

10-515-179 Respiratory Therapy Clinical Practice 3 3 credits
Continued development of Respiratory Therapy clinical skills including respiratory therapeutics. Focuses on monitoring, analyzing and interpreting data to make appropriate modifications in patient care. This course includes the complete program competency list. At the completion of this clinical, learners must demonstrate competence in a minimum of 19 (required and/or simulated) competencies. The instructor may identify specific competencies to be addressed during this clinical. Prerequisite: 10-515-175. Corequisites: 10-515-176, 10-515-177 and 10-515-178.

10-515-180 Respiratory Neonatal/Pediatric Care/NPR 2 credits
Provides a comprehensive orientation to the field of neonatal and pediatric respiratory care to include fetal development, birth, neonatal physiology, pulmonary dynamics, abnormal cardiopulmonary conditions, diseases, noninvasive and invasive therapeutic interventions. Prerequisite: 10-515-176. Corequisites: 10-515-181, 10-515-182 and 10-515-183.

10-515-181 Respiratory & Circulatory Diagnostics & Monitoring 3 credits
Advanced invasive and noninvasive diagnostic cardiopulmonary procedures including pulmonary function, hemodynamics and rescue medicine. Prerequisite: 10-515-176. Corequisites: 10-515-180, 10-515-182 and 10-515-183.

10-515-182 Respiratory Therapy Clinical Practice 4/ACLS 3 credits
Continued development of Respiratory Therapy clinical skills including respiratory therapeutics. Focuses on monitoring, analyzing and interpreting data to make appropriate modification in patient care. This course includes the complete program competency list. At the completion of this clinical, learners must demonstrate competence in a minimum of 26 (required and/or simulated) competencies. The instructor may identify specific competencies to be addressed during this clinical. Prerequisite: 10-515-176. Corequisites: 10-515-180, 10-515-181 and 10-515-183.

10-515-183 Respiratory Therapy Clinical Practice 5 3 credits
Focuses on the completion of respiratory therapy competencies and transition to employment. This course includes the complete program competency list. At the completion of this clinical learners must demonstrate competence in all of the required and/or simulated competencies. The instructor may identify specific competencies to be addressed during this clinical. Prerequisite: 10-515-176. Corequisites: 10-515-180, 10-515-181 and 10-515-182.

Career Potential:

- **Respiratory Care Practitioner**

With additional education and/or work experience, graduates may find employment as:

- **Pulmonary Function Technologist**
- **Respiratory Care Manager**
- **Respiratory Care Supervisor**
- **Neonatal/Pediatric Therapist**
- **Respiratory Care Educator**
- **Pulmonary Rehabilitation Therapist**
- **Sleep Disorder Therapist**
- **Home Care Therapist**
- **Pulmonary Research Assistant**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Restorative and Rehabilitation Therapy Aide

Program Number: 90-524-1

Certificate

Health-Related Professions Program Cluster

Center of Health & Safety Education

Program offered at Madison Campuses
For information call: (608) 246-6065 or (800) 322-6282 ext. 6065

About the Restorative and Rehabilitation Therapy Aide Program

The 60 hour, 2 credits, Restorative & Rehabilitation Therapy Aide training provides Certified Nursing Assistants with additional skills and insights in the therapeutic area. It assists with career exploration in a variety of therapeutic settings. Training includes classroom, lab and instruction in therapeutic interventions and approaches to care. Therapeutic site tours and presentation by different types of therapists at a variety of area health care facilities. Site visits will include an Acute Care Rehabilitation setting, Sports Medicine, Long Term Care, Restorative care setting and Speech Therapy. This is short-term training offered at the Madison campus.

Program Requirements and Courses

1) Certified Nursing Assistant in good standing on the Wisconsin Nurse Aide Registry; and
2) Completion or concurrent enrollment in Body Structure and Function.

10-524-124 Restorative and Rehabilitation Therapy Aide 2 credits

The 60 hour, 2 credits, Restorative and Rehabilitation Therapy Aide training prepares Certified Nursing Assistants for employment as aides in restorative and rehabilitation therapy settings. Rehabilitation therapy aides work in the therapy department under the supervision of the therapist in hospitals, long term care and clinic settings. Restorative aides work under the supervision of the registered nurse. Training includes classroom, lab and clinical instruction in therapeutic interventions and approaches to care.

Curriculum

Course		Credits	Hrs/week Lec-Lab
10-524-124	Restorative and Rehabilitation Therapy Aide	2	0-4
Required Prerequisite			
30-543-300	Nursing Assistant class and Wis Registry	3	3.0
31-543-335	Body Structure **OR**	2	3-0
10-501-153	Body Structure **OR**	(3)	(3-0)

A copy of the essential functions necessary to successfully complete the program of study is available upon request from the division office.

Learning modules

- Introduction to Therapeutic Health Care
- The Role of the Restorative and Rehabilitation Therapy Aide
- Safety of the Therapeutic Process
- Interpersonal Relations in the Therapeutic Process
- Therapeutic Approaches to Activities of Daily Living
- Therapeutic Procedures
- Reporting and Documenting Therapeutic Interventions
- Office Procedures
- Therapeutic Approaches to Health Conditions
- Professionalism

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Madison Area Technical College

Effective: 2010-2011

Surgical Technologist

Program Number: 31-512-1

One-Year Technical Diploma

Health-Related Professions Program Cluster

Center of Health & Safety Education

Program offered at Madison Campuses

For information call: (608) 246-6065, (608) 246-6280 or (800) 322-6282 Ext. 6065 or 6280

About the Program

The Surgical Technologist Program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) in cooperation with the Accreditation Review Committee (ARC) on Education in Surgical Technology. ARC is sponsored by the Association of Surgical Technologists, the American College of Surgeons and the American Hospital Association.

Graduates of the program are prepared to function as members of a surgical team. Surgical technologists are allied health professionals who are an integral part of the team of medical practitioners providing surgical care to patients in a variety of settings. The surgical technologist works under medical supervision to facilitate the safe and effective conduct of invasive surgical procedures. This individual works under the supervision of a surgeon to ensure that the operating room environment is safe, that equipment functions properly, and that the operative procedure is conducted under conditions that maximize patient safety. A surgical technologist possesses expertise in the theory and application of sterile and aseptic technique and combines the knowledge of human anatomy, surgical procedures, and implementation of tools and technologies to facilitate a physician's performance of invasive therapeutic and diagnostic procedures.

Opportunities may exist to accept a limited number of transfer students into the fall and spring semesters of the program. Individuals interested in this option should call the Center office and schedule and appointment to discuss their particular situation.

Application Process

To apply to the program, students must submit a complete application packet including application, all transcripts and testing scores.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
Summer Semester		**Credits**	**Lec-Lab**
10-501-153	Body Structure* **OR**	3	3-0
20-806-206	General Anatomy & Physiology* **OR**	(4)	(5-4)
20-806-208	Anatomy & Physiology I & II*	(8)	(6-4)
10-501-101	Medical Terminology*	3	3-0
10-801-195	Written Communication* **OR**	(3)	(3-0)
20-801-201	English 1* **OR**	3)	(3-0)
10-801-196	Oral/Interpersonal Communication	3	3-0
	Semester Total	**9**	
First Semester			
31-512-327	ST Introduction to Surgical Technology (1st 9 wks)	4	8-0
31-512-328	ST Fundamentals 1 (1st 9 wks)	4	8-0
31-512-329	ST Fundamentals 2 (2nd 9 wks)	2	4-0
31-512-330	ST Clinical 1 (2nd 9 wks)	3	0-16
31-512-317	Functional Microbiology**	1	2.5-0
	Semester Total	**14**	
Second Semester			
31-512-331	ST Surgical Procedures	4	9-0
31-512-332	ST Clinical 2	4	0-24
31-512-334	ST Clinical 3	4	0-24
	Semester Total	**12**	

* Students may complete some or all of these requirements at Madison College or at another college prior to beginning the ST program courses. See Program Director for evaluation of transfer credits.

** Microbiology is open to students on the waiting list on a space available basis. There is also the college-transfer level Microbiology of 20-806-273 (4 credits) that can be taken instead of the listed course.

Students who are successful in this field:

- possess a strong sense of responsibility, considerable patience and concern for others;
- function well as a team member;
- possess manual dexterity and fine motor coordination; and
- perform accurately and efficiently under pressure.

Note: A copy of the essential functions necessary to successfully complete the program of study is available upon request from the division office.

Unique Requirements for Admission

1) High school graduation, HSED or GED; and 2) Satisfactory scores on the COMPASS, ASSET test or comparable substitute. 3) One year each of high school math and science with a grade of C or better in each course, each semester. 4) meets college entrance requirements; 5) meets college health requirements; 6) Wisconsin's Caregiver Law (1997 Wisconsin Act 27) requires a completed criminal background check prior to access to patients and/or children in clinical agencies/field sites used by this program. Based upon results of the criminal background check, a student may be denied access to clinical agencies/field sites and thus would not be able to complete the program. For the most current information on the Caregiver Law, visit this website: www.dhfs.state.wi.us.

Program Requirements

1) Hepatitis B vaccine prior to beginning fall semester clinical experience; 2) Physical exam and completed History Form on file prior to beginning clinical affiliation and 3) Caregiver Background Check (CBC). Refer to catalog for this Health, Human and Protective Services Policy.

Requirement for beginning fall semester clinical courses: CPR certification (includes C level/Healthcare Provider and two-person rescue).

Additional Fees: Hepatitis B vaccine, parking fees at clinical sites, clinical shoes, personal protective eyewear.

Program Courses

Note: For the following courses, see course catalog or Madison College Website:

10-501-153	**Body Structure**	**3 credits**
20-806-206	**General Anatomy & Physiology**	**4 credits**
20-806-207 & 208	**Anatomy & Physiology I & II**	**8 credits**
10-801-196	**Oral/Interpersonal Communication**	**3 credits**
10-510-101	**Medical Terminology**	**3 credits**

31-512-317 Functional Microbiology 1 credit
Introduces general classification, structure and physiology of microorganisms. Students learn the relationship between microorganisms and the human host as well as microbes in the hospital environment. Examines the study of the disease process, transmission of disease and methods of controlling microbial growth. Prerequisite: one year of high school science with a grade of C or better in each semester.

31-512-327 ST Introduction to Surgical Technology 4 credits
Provides the foundational knowledge of disinfection, sterilization, infection control, and asepsis. Examines weights and measures / metric system, pharmacology and anesthesia. Legal and ethical issues encountered in the healthcare environment are explored. Simulated laboratory practice enables the learner to develop beginning technical skills. Prerequisite: one year of high school math with a grade of C or better in each semester

31-512-328 ST Fundamentals 1 4 credits
Includes the basic clinical skills needed by the Surgical Technologist in the scrub role. Learners develop skills in identifying basic instrumentation, supplies, drains, catheters, dressings and sponges. Includes practice experience in creating a sterile field, draping, passing instruments and supplies, performing counts and preparing supplies.

31-512-329 ST Fundamentals 2 2 credits
Builds upon and reinforces the role of the Surgical Technologist as a member of the operating room team. Discusses care of the patient before, during and after surgery with emphasis on surgical wounds, wound closure materials, and vital signs. Includes lecture and lab experiences.

31-512-330 ST Clinical 1 3 credits
Apply basic surgical theories, principles, and procedural techniques in the operating room. Students begin to function as team members under the guidance of the instructor and authorized clinical personnel.

31-512-331 ST Surgical Procedures 4 credits
Provides the foundational knowledge of surgical core and specialty procedures. Examines the pathophysiology, diagnostic interventions and surgical interventions for a variety of surgical procedures. Incorporates integration of basic health sciences and technical knowledge to complete a plan of action for a surgical procedure.

31-512-332 ST Clinical 2 4 credits
Further experience in a clinical setting allows the student to continue to improve technical skills while accepting more responsibilities during surgical procedures.

31-512-334 ST Clinical 3 4 credits
Enhances the student's technical experience and employee skills. Serves as a transition between student and employee. Application of advanced skills for the entry-level Surgical Technologist in the clinical setting.

Career Potential:

- **Surgical Technologist In hospital operating rooms, ambulatory/day surgery units and obstetric/delivery units.**
- **OB Technician**
- **Private Scrub Technologist**
- **Second Assisting**
- **First Assisting Technologist**
- **GI Technician**
- **Laser/Endoscopic Technician**
- **Tissue/Organ Procurement**
- **Central Supply Technician**
- **Material Manager**
- **Claims Approver**
- **Surgical Sales Representative**
- **Vet Technician**

Some of the occupations listed may require additional education.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Therapeutic Massage

Program Number: 30-537-1

Less-Than-One-Year Program

Health-Related Professions Program Cluster

Center of Health & Safety Education

Program offered at Downtown Education Center, Madison

For information call: (608) 246-6065, (608) 258-2321 or (800) 322-6282 Ext. 6065 or 2321

About the Program

The Therapeutic Massage program offers an entry-level training program for students interested in pursuing a professional career in massage therapy, or for health care providers looking to enhance their range of clinical skills and knowledge. There is a wide range of career opportunities available in this rapidly expanding field. During their training, students gain a comprehensive understanding of the human body and a high degree of technical skill, with an emphasis on personal and professional development, increased self-awareness and sensitivity. Our graduates enjoy the benefits of being of service to others and having work that is meaningful.

Upon graduation from the program, students are eligible to apply to write the National Certification Exam for Massage Therapists and Bodyworkers and to apply to the Wisconsin Department of Regulation and Licensing for state certification.

Note: Convictions of crimes or pending charges may be grounds for denial of license if the circumstances of the conviction or charge are substantially related to professional practice. Applicants should check the following website for more information: www.dhfs.state.wi.us/caregiver or call (608) 266-5764 or contact Department of Regulation and Licensing of the State of Wisconsin.

Unique Requirements for Admission

1) High school graduation or GED equivalency, 2) one-year high school biology or one semester of college human anatomy and 3) COMPASS or equivalent assessment test.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

			Hrs/week
First Semester		**Credits**	**Lec-Lab**
30-537-336	Musculoskeletal Anatomy *	1	5-0
30-537-334	Applied Musculoskeletal Anatomy *	1	5-0
10-501-153	Body Structure and Function * **OR**	3	3-0
20-806-206	General Anatomy & Physiology *	(4)	5-4
30-537-340	Introduction to Therapeutic Massage 1	3	6-9
30-537-342	Introduction to Therapeutic Massage 2	3	6-9
	Total	**10**	
Second Semester			
30-537-338	Kinesiology *	1	2.5-0
30-537-339	Pathology *	1	2.5-0
30-537-344	Specialized Techniques	3	0-15
30-537-346	Massage Clinic and Business Practices	3	8-7
	Total	**8**	

*Course may be taken prior to entering the program.

Courses

30-537-334 Applied Musculoskeletal Anatomy 1 credit
Explores a thorough understanding of musculoskeletal anatomy as it applies to Therapeutic Massage. Students will develop palpation skills, practice ROM movements, and learn specific massage therapy techniques to identify the bones and muscles that comprise the musculoskeletal system. Students apply their knowledge from the Musculoskeletal Anatomy course in a hands-on, lab-type setting. Co-requisite: 30-537-336.

30-537-336 Musculoskeletal Anatomy 1 credit
Course focuses on the anatomy and physiology of the skeletal and muscular systems of the body. Students will learn the names, locations, insertion points and actions of many of the muscles of the human body. An optional cadaver lab is offered to interested students. Co-requisite: 30-537-334

10-501-153 Body Structure and Function 3 credits
A concise introduction to human body structure and function. Normal and abnormal states of the body and basic disease processes affecting the body are emphasized. Common problems encountered in a variety of health care settings are presented.

30-537-338 Kinesiology 1 credit
Students further study the musculoskeletal system with an emphasis on muscle groups used to perform specific actions. This course will assist students in making assessments and identifying muscles involved in certain injuries. Prerequisites: 30-537-336, 30-537-334 and 10-501-153.

30-537-339 Pathology 1 credit
Covers the types of disorders that may occur in each of the major body systems and more specifically, the signs and symptoms of selected disorders that could endanger the health of either the massage client or the practitioner. Students also gain a basic understanding of pharmacology and the possible interactions between medications and massage. Prerequisites: 30-537-336, 30-537-334 and 10-501-153.

30-537-340 Introduction to Therapeutic Massage 1 3 credits
This course introduces students to the field of "touch therapies." Topics covered include the history of massage, educational and legal requirements, effects, benefits and contraindications of massage, basic massage techniques, proper draping techniques, body mechanics, chair massage and selecting a massage table. Many learning activities help students in developing increased body awareness and relaxation skills. Prerequisites: 30-537-334, 30-537-336 and 30-537-337 (or its alternatives listed in curriculum)

30-537-342 Introduction to Therapeutic Massage 2 3 credits
Topics covered include personal and professional ethics, medical terminology, sanitation and safety, choosing massage equipment and supplies to create the massage environment, interviewing clients, assessments and keeping client records. Students are instructed in making positive choices for a healthy lifestyle. Massage techniques include learning a full body massage routine. Prerequisite: 30-537-340.

30-537-344 Specialized Techniques 3 credits
Students learn to work with clients with special needs such as pregnant clients, the elderly and individuals with particular health challenges. Remedial techniques taught include trigger point therapy, cross fiber friction, sports massage, reflexology and other therapeutic techniques. Related and complimentary fields are explored. Prerequisite: 30-537-342.

30-537-346 Massage Clinic and Business Practices 3 credits
This training provides the massage student with an opportunity to practice and refine their massage skills and to deal with clients with varying needs. The student-run clinic affords the student experience in scheduling appointments, keeping client records, and creating a restful, relaxing atmosphere for clients. In the business portion of the class, students explore career opportunities and compare advantages. Students must be certified in First Aid/CPR before beginning clinic. Prerequisite: 30-537-344.

Career Potential:

- **Nationally Certified Massage Therapist**
- **Wisconsin Certified Massage Therapist**

After passing the National Certification Exam for Massage Therapists and Bodyworkers and applying to the Wisconsin Department of Regulation and Licensing, graduates may work as Wisconsin Certified Massage Therapists in massage clinics, health clubs, chiropractic offices, hospitals, beauty salons, day spas, or in private practice.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev. 03/10

Early Childhood Education

Program Number: 10-307-1

Associate in Applied Science Degree

Education Program Cluster

Center for Human and Protective Services

Program offered at Downtown Education Center, Madison

For information call: (608) 245-5888 or (800) 322-6282 Ext. 5888

About the Program

The Early Childhood Education program prepares students to work as teacher-caregivers in early childhood settings. It combines hands-on fieldwork in area centers with related academic work at the college. Graduates become responsible for the care and education of children in the birth-to-six-years age range. They create and maintain safe and healthy play environments, guide behavior, plan and implement learning activities, and work cooperatively with staff and parents.

Success in the field depends on a caring attitude, showing respect for children and adults, flexibility, good judgment, dependability and effective communication skills.

Travel to fieldwork sites is necessary and is the student's responsibility. Public transportation is readily available. Some courses in the program involve preparation of learning materials, field trips, etc. that may involve additional expenses.

Unique Requirements for Admission

High school diploma with a GPA of 2.0 or GED or satisfactory completion of 12 college credits. In addition, prior to taking ECE: Practicum 1, students must show evidence of a physical examination including TB test and must complete a Background Information Disclosure and Criminal History Check (CHC) prior to placement in the Early Childhood Education Practicum courses. Information obtained from the CHC may affect the ability to secure a practicum placement. A COMPASS Reading score of 75 or higher, or an ASSET Reading score of 39 or higher, is required for all first semester Early Childhood Program courses.

Unique Requirements for Graduation

Students must achieve at least a 2.0 (C) grade in all program core courses and an overall 2.0 (C) grade point average.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-307-148	ECE: Foundations of Early Childhood Education**	3	3-0
10-307-151	ECE: Infant and Toddler Development**	3	3-0
10-307-166	ECE: Curriculum Planning**	3	2-2
10-307-167	ECE: Health, Safety, and Nutrition **	3	3-0
10-307-174	ECE: Practicum 1**	3	1.5-8
10-801-195	Written Communication **OR**	3	3-0
20-801-201	English 1*	(3)	(3-0)
	Semester Total	**18**	
Second Semester			
10-307-178	ECE: Art, Music, and Language Δ	3	2-2
10-307-179	ECE: Child Development Δ	3	3-0
10-307-188	ECE: Guiding Children's Behavior Δ	3	2-2
10-307-192	ECE: Practicum 2**	3	3-8
10-801-198	Speech **OR**	3	3-0
20-810-201	Fundamentals of Speech Composition*	(3)	(3-0)
10-809-172	Race, Ethnic & Diversity Studies **OR**	3	3-0
20-809-217	Race, Class and Gender*	(3)	(3-0)
	Semester Total	**18**	
SECOND YEAR			
First Semester			
10-307-194	ECE: Math, Science, and Social Studies Δ	3	2-2
10-307-195	ECE: Family and Community Relations Δ	3	3-0
10-307-197	ECE: Practicum 3**	3	1.5-10.5
10-801-197	Technical Reporting **OR**	3	3-0
20-801-202	English 2*	(3)	(3-0)
10-809-199	Psychology of Human Relations **OR**	3	3-0
20-809-231	Introduction to Psychology*	(3)	(3-0)
	Semester Total	**15**	
Second Semester			
10-307-187	ECE: Children with Differing Abilities Δ	3	3-0
10-307-198	ECE: Administering an Early Childhood Program Δ	3	3-0
10-307-199	ECE: Practicum 4**	3	1.5-10.5
10-804-123	Math with Business Applications **OR**	3	3-0
20-804-201	Intermediate Algebra*	(3)	(3-0)
10-809-197	Contemporary American Society	3	3-0
20-809-203	Introduction to Sociology*	(3)	(3-0)
	Elective	3	E
	Semester Total	**18**	

* College transfer equivalent courses.
** Prerequisites required. Consult faculty.
Δ Prerequisites recommended. Consult faculty.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s. A COMPASS Reading score of 75 or higher, or an ASSET Reading score of 39 or higher, is required for all first semester Early Childhood Program courses.

NOTE: Early Childhood Education courses are usually offered one semester per year as indicated above. Students interested in a part-time schedule should consult the Program Director prior to registration.

Program Courses

10-307-148 ECE: Foundations of Early Childhood Education 3 credits
This course introduces you to the early childhood profession. Course competencies include: integrate strategies that support diversity and anti-bias perspectives; investigate the history of early childhood education; summarize types of early childhood education settings; identify the components of a quality early childhood education program; summarize responsibilities of early childhood education professionals; explore early childhood curriculum models. Prerequisite: COMPASS Reading score of 75 or higher.

10-307-151 ECE: Infant and Toddler Development 3 credits
In this course you will study infant and toddler development as it applies to an early childhood education setting. Course competencies include: analyze development of infants and toddlers (conception to three years); correlate prenatal conditions with development; summarize child development theories; analyze the role of heredity and the environment; examine research-based models; examine culturally and developmentally appropriate environments for infants and toddlers. Prerequisite: COMPASS Reading score of 75 or higher.

10-307-166 ECE: Curriculum Planning 3 credits
This course examines the components of curriculum planning in early childhood education. Course competencies include: examine the critical role of play; establish a developmentally appropriate environment; examine care giving routines as curriculum; develop activity plans and unit plans that promote child development and learning; analyze early childhood curriculum models. Prerequisite: COMPASS Reading score of 75 or higher.

10-307-167 ECE: Health, Safety, and Nutrition 3 credits
This course examines the topics of health, safety and nutrition within the context of the early childhood educational setting. Course competencies include: follow governmental regulations and professional standards as they apply to health, safety and nutrition; provide a safe, healthy, and nutritionally sound early childhood program; adhere to child abuse and neglect mandates; apply Sudden Infant Death Syndrome (SIDS) risk reduction strategies; incorporate health, safety and nutrition concepts into the children's curriculum. Prerequisite: COMPASS Reading score of 75 or higher.

10-307-174 ECE: Practicum 1 3 credits
In this practicum course you will learn about standards for quality in early childhood education. This first of four training experiences develops skill in interacting with children and adults. Madison College faculty help students through periodic observation and conferences. In addition, there is a weekly discussion focusing on what students are observing and learning at their practicum sites and on developing skills as team members. Prerequisite: COMPASS Reading score of 75 or higher.

10-307-178 ECE: Art, Music and Language 3 credits
This course will focus on beginning level curriculum development in the specific content areas of art, music and language arts. Course competencies include: examine the critical role of play; establish a developmentally appropriate environment; develop activity plans that promote child development and learning; analyze care giving routines as curriculum; create developmentally appropriate language, literature and literacy activities; create developmentally appropriate art, music, and movement activities. Recommended prerequisite: 10-307-166.

10-307-179 ECE: Child Development 3 credits
The course examines child development within the context of the early childhood education setting. Course competencies include: analyze social, cultural and economic influences on child development; summarize child development theories; analyze development of children age three through age eight; summarize the methods and designs of child development research; analyze the role of heredity and the environment. Recommended prerequisite: 10-307-151.

10-307-187 ECE: Children with Differing Abilities 3 credits
This course focuses on the child with differing abilities in an early childhood education setting. Course competencies include: provide inclusive programs for young children; apply legal and ethical requirements including, but not limited to, ADA and IDEA; differentiate between typical and exceptional development; analyze the differing abilities of children with physical, cognitive, health/medical, communication, and/or behavioral/emotional disorders; work collaboratively with community and professional resources; utilize an individual educational plan (IEP/IFSP) for children with developmental differences; adapt curriculum to meet the needs of children with developmental differences; cultivate partnerships with families who have children with developmental differences. Recommended prerequisites: 10-307-151 and 10-307-179.

10-307-188 ECE: Guiding Children's Behavior 3 credits
This course examines positive strategies to guide children's behavior in the early childhood education setting. Course competencies include: summarize early childhood guidance principles; analyze factors that affect the behavior of children; practice positive guidance strategies; develop guidance strategies to meet individual needs; create a guidance philosophy. Recommended prerequisite: 10-307-151.

10-307-192 ECE: Practicum 2 3 credits
In this second training experience, students apply the knowledge and skills acquired in Practicum 1 and related class work under the supervision of Madison College faculty and teacher-caregivers at centers. Planning and implementing activities are included and conferences are scheduled to help students. Prerequisite: 10-307-174.

10-307-194 ECE: Math, Science and Social Studies 3 credits
This course will focus on beginning level curriculum development in the specific content areas of math, science and social studies. Course competencies include: examine the critical role of play; establish a developmentally appropriate environment; develop activity plans that promote child development and learning; create developmentally appropriate math, science and social studies activities. Recommended prerequisite: 10-307-166.

10-307-195 ECE: Family and Community Relations 3 credits
In this course you will examine the role of relationships with family and community in early childhood education. Course competencies include: analyze contemporary family patterns, trends and relationships; utilize effective communication strategies; establish ongoing relationships with families; advocate for children and families; work collaboratively with community resources. Recommended prerequisite: 10-307-188.

10-307-197 ECE: Practicum 3 3 credits
In this third training experience, students continue to develop teacher-caregiver skills. One week of head teaching is required. Prerequisites: 10-307-174 and 10-307-192.

10-307-198 ECE: Administering an Early Childhood Education Program 3 credits
This course focuses on the administration of an early childhood education program. Course competencies include: analyze the components of an ECE facility; design an ECE program; analyze the aspects of personnel supervision; outline financial components of an ECE program; apply laws and regulations related to an ECE facility; advocate for the early childhood profession. Recommended prerequisite: 10-307-192.

10-307-199 ECE: Practicum 4 3 credits
This final training experience includes two weeks of head teaching, stresses staff-parent communication and may be designed to coordinate with student's choices of career specializations. Prerequisites: 10-307-174, 10-307-192 and 10-307-197.

Career Potential:

- **Child Care Teachers**
  Work in full-day and part-day childcare programs, nursery schools and Head Start programs.
- **Child Care Assistant Teachers**
  Work under the supervision of a child care teacher.
- **Family Child Care Providers**
  Care for eight children or less in provider's home.
- **Infant or Toddler Caregivers**
  Care for children under two years of age.
- **In-home Providers/Nannies**
  Provide care in the child's home.
- **Early Childhood**
- **Special Needs/ Educational Assistants**
  Work in public school early childhood programs, and public school four-year-olds' programs.
- **Directors/ Administrators**
  Are responsible for managing day care centers and planning and implementing program.

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev: 03/10

Emergency Medical Technician

Basic • Intermediate Technician • Intermediate EMT Program Numbers: 30-531-3/30-531-6/30-531-4

Less-Than-One-Year Diploma

Emergency Medical Services Program Cluster

Center for Human & Protective Services

Program offered at the West Campus

For information call: (608) 246-5250 or (800) 322-6282 Ext. 5250

Unique Requirements for Admission to
All MADISON COLLEGE EMT Entry-level Programs

Students must be at least 18 years old and have a current health care provider CPR card. Students must complete a Criminal History Check as required by the state for licensure and clinical sites. Upon acceptance, a physical examination is required. See the specific EMT program for any additional program requirements. For EMT course information and application/registration material, go to: http://matcmadison.edu/program-info/emergency-medical-technician-basic and click on the Admissions tab.

Emergency Medical Technician–Basic (EMT-B)
Less-Than-One-Year Diploma

This is an entry-level course and meets requirements for licensure in Wisconsin and certification with the National Registry of Emergency Medical Technicians. This course is offered throughout the district. Prerequisites: CPR certification at professional level and a COMPASS Reading score of 68 or higher or proof of a grade of C or better in a college level English. Students must be at least 18 years old.

Program Course

30-531-301 Emergency Medical Technician Basic 4 credits
Follows the US Department of Transportation EMT–Basic course curriculum. Patient contact experience required. This course meets requirements for certification with the National Registry of Emergency Medical Technicians and educational requirements for EMT licensure in Wisconsin. Prerequisites: CPR certification at professional level and a COMPASS Reading score of 68 or higher or proof of a grade of C or better in a college level English. Students must be at least 18 years old.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

Note: Copies of the essential functions necessary to successfully complete these programs of study are available upon request from the division office.

Course		Credits	Hrs/week Lec-Lab
Emergency Medical Technician–Basic (EMT-B)			
30-531-301	Emergency Medical Technician-Basic **OR**	4	4-4
10-531-101	Emergency Medical Technican-Basic	(4)	(4-4)
Emergency Medical Technician–Intermediate Tech (EMT-Int Tech)			
30-531-360	Emergency Medical Technician-Intermediate Tech..	3	3-3
Emergency Medical Technician–Intermediate (EMT-I)			
30-531-351	Advanced Emergency Care 1	4	4-4
30-531-352	Advanced Emergency Care 2	4	4-4
30-531-353	EMT-I Internship	4	0-16

Emergency Medical Technician–Intermediate Technician (EMT-Int Tech)
Less-Than-One-Year Diploma

This course builds on the EMT-Basic curriculum. Students learn advanced patient assessment, communication skills and beginning advanced life support interventions. This course meets the educational requirements for licensure in Wisconsin. Prerequisite: EMT-Basic. Students must complete a Criminal History Check as required by the state for licensure and clinical sites. The Department of Health and Family Services may set other requirements.

Program Course

30-531-360 EMT Intermediate Technician 3 credits
Students learn advanced patient assessment, communication skills and beginning advanced life support interventions. Meets requirements for licensure in Wisconsin. Prerequisite: valid EMT–Basic License.

Emergency Medical Technician–Intermediate (EMT-I)
Less-Than-One-Year Diploma

This course builds on the EMT-Basic and Intermediate Technician curriculum. Students learn advanced patient assessment, communication skills and advanced life support interventions. This course meets requirements for certification with the National Registry of Emergency Medical Technicians and educational requirements for licensure in Wisconsin. Prerequisite: valid EMT-Basic license. The Department of Health and Family Services may set other requirements.

Program Courses

30-531-351 Advanced Emergency Care 1 4 credits
Students learn advanced patient assessment, communication skills and intermediate advanced life support interventions. Prerequisite: valid EMT–Basic license.

30-531-352 Advanced Emergency Care 2 4 credits
Students continue to learn advanced patient assessment, communication skills and intermediate advanced life support interventions. Prerequisite: Advanced Emergency Care 1, 30-531-351.

30-531-353 Emergency Medical Technician–Intermediate Internship 4 credits
Upon successful completion of Advanced Emergency Care 1, 30-531-351, and Advanced Emergency Care 2, 30-531-352, students participate in a field internship. Students apply knowledge and skills to pre-hospital patient situations, supervised by clinical instructors, on ambulance calls.

Career Potential:

With additional education and/or work experience, graduates may find employment as:

- **Emergency Room Technician**
- **Firefighter**
- **Emergency Medical Technician-Intermediate**
- **EKG Technician**
- **Paramedic**
- **Medical Laboratory Technician**
- **Home Health Aide**
- **Medical Assistant**
- **Emergency Medical Technician-Paramedic**
- **Registered Nurse**
- **Respiratory Therapist**
- **Physician's Assistant**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Emergency Medical Technician

Basic • Intermediate Technician • Intermediate EMT Program Numbers: 30-531-3/30-531-6/30-531-4

Less-Than-One-Year Diploma

Emergency Medical Services Program Cluster

Center for Human & Protective Services

Program offered at the West Campus

For information call: (608) 246-5250 or (800) 322-6282 Ext. 5250

Unique Requirements for Admission to
All MADISON COLLEGE EMT Entry-level Programs

Students must be at least 18 years old and have a current health care provider CPR card. Students must complete a Criminal History Check as required by the state for licensure and clinical sites. Upon acceptance, a physical examination is required. See the specific EMT program for any additional program requirements. For EMT course information and application/registration material, go to: http://matcmadison.edu/program-info/emergency-medical-technician-basic and click on the Admissions tab.

Emergency Medical Technician–Basic (EMT-B)
Less-Than-One-Year Diploma

This is an entry-level course and meets requirements for licensure in Wisconsin and certification with the National Registry of Emergency Medical Technicians. This course is offered throughout the district. Prerequisites: CPR certification at professional level and a COMPASS Reading score of 68 or higher or proof of a grade of C or better in a college level English. Students must be at least 18 years old.

Program Course

30-531-301 Emergency Medical Technician Basic 4 credits
Follows the US Department of Transportation EMT–Basic course curriculum. Patient contact experience required. This course meets requirements for certification with the National Registry of Emergency Medical Technicians and educational requirements for EMT licensure in Wisconsin. Prerequisites: CPR certification at professional level and a COMPASS Reading score of 68 or higher or proof of a grade of C or better in a college level English. Students must be at least 18 years old.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

Note: Copies of the essential functions necessary to successfully complete these programs of study are available upon request from the division office.

Course		Credits	Hrs/week Lec-Lab
Emergency Medical Technician–Basic (EMT-B)			
30-531-301	Emergency Medical Technician-Basic **OR**	4	4-4
10-531-101	Emergency Medical Technican-Basic	(4)	(4-4)
Emergency Medical Technician–Intermediate Tech (EMT-Int Tech)			
30-531-360	Emergency Medical Technician-Intermediate Tech..	3	3-3
Emergency Medical Technician–Intermediate (EMT-I)			
30-531-351	Advanced Emergency Care 1	4	4-4
30-531-352	Advanced Emergency Care 2	4	4-4
30-531-353	EMT-I Internship	4	0-16

Emergency Medical Technician–Intermediate Technician (EMT-Int Tech)
Less-Than-One-Year Diploma

This course builds on the EMT-Basic curriculum. Students learn advanced patient assessment, communication skills and beginning advanced life support interventions. This course meets the educational requirements for licensure in Wisconsin. Prerequisite: EMT-Basic. Students must complete a Criminal History Check as required by the state for licensure and clinical sites. The Department of Health and Family Services may set other requirements.

Program Course

30-531-360 EMT Intermediate Technician 3 credits
Students learn advanced patient assessment, communication skills and beginning advanced life support interventions. Meets requirements for licensure in Wisconsin. Prerequisite: valid EMT–Basic License.

Emergency Medical Technician–Intermediate (EMT-I)
Less-Than-One-Year Diploma

This course builds on the EMT-Basic and Intermediate Technician curriculum. Students learn advanced patient assessment, communication skills and advanced life support interventions. This course meets requirements for certification with the National Registry of Emergency Medical Technicians and educational requirements for licensure in Wisconsin. Prerequisite: valid EMT-Basic license. The Department of Health and Family Services may set other requirements.

Program Courses

30-531-351 Advanced Emergency Care 1 4 credits
Students learn advanced patient assessment, communication skills and intermediate advanced life support interventions. Prerequisite: valid EMT–Basic license.

30-531-352 Advanced Emergency Care 2 4 credits
Students continue to learn advanced patient assessment, communication skills and intermediate advanced life support interventions. Prerequisite: Advanced Emergency Care 1, 30-531-351.

30-531-353 Emergency Medical Technician–Intermediate Internship 4 credits
Upon successful completion of Advanced Emergency Care 1, 30-531-351, and Advanced Emergency Care 2, 30-531-352, students participate in a field internship. Students apply knowledge and skills to pre-hospital patient situations, supervised by clinical instructors, on ambulance calls.

Career Potential:

With additional education and/or work experience, graduates may find employment as:

- **Emergency Room Technician**
- **Firefighter**
- **Emergency Medical Technician-Intermediate**
- **EKG Technician**
- **Paramedic**
- **Medical Laboratory Technician**
- **Home Health Aide**
- **Medical Assistant**
- **Emergency Medical Technician-Paramedic**
- **Registered Nurse**
- **Respiratory Therapist**
- **Physician's Assistant**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Emergency Medical Technician:
Paramedic

Program Number: 30-531-2

Less-Than-One-Year Diploma

Emergency Medical Services Program Cluster

Center for Human and Protective Services

Program offered at the West Campus

For information call: (608) 246-5250 or (800) 322-6282 Ext. 5250

About the Program

This curriculum stresses the integration of knowledge and skills required to competently perform pre-hospital advanced life support. Graduates are eligible for national certification and Wisconsin licensure as an EMT-Paramedic.

Unique Requirements for Admission
You must be at least 18 years of age, have a valid Wisconsin license as an EMT-Basic, EMT-Intermediate Technician or EMT-Intermediate and have successfully completed the program admission testing process. A COMPASS Reading score of 75 or higher, Writing score of 31 or higher, Pre-algebra score of 43 or higher are required for admission to the EMT Paramedic Program. A grade of C or better in a college level English and Math will also satisfy this requirement. Proof of this must be provided. Students must complete a Criminal History Check as required by the state for licensure and clinical sites. Upon acceptance, a physical examination is required.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

		Credits	Hrs/week Lec-Lab
First Semester			
30-531-370	Introduction to Advanced Emergency Care	2	4-0
30-531-371	Pharmacology	2	4-0
30-531-374	EMT-Paramedic Clinical 1	3	0-12
30-531-377	Advanced Cardiopulmonary Emergency Care	2	4-0
30-531-378	Adult and Pediatric Advanced Cardiac Life Support	1	2-0
30-531-379	EMT-Paramedic Clinical 2	3	0-12
	Total	**13**	
Second Semester			
30-531-372	Trauma Care for the Paramedic	2	4-0
30-531-373	EMS Operations	1	2-0
30-531-375	Medical Emergencies 1	2	4-0
30-531-376	Emergency Care for Specialties	2	4-0
30-531-380	Paramedic Seminar	1	2-0
30-531-381	EMT-Paramedic Internship	4	0-16
	Total	**12**	

Program Courses

30-531-370 Introduction to Advanced Emergency Care 2 credits
Provides an introduction to the paramedic program with an emphasis on the role and responsibilities of a paramedic. Subjects covered include the study of human growth and development, and anatomy and physiology. The course continues with legal and ethical issues, communication and patient assessment. Medical history, data collection, physical examination and clinical decision-making will be addressed in both lecture and lab format. This course is based on the Department of Transportation National Standard Curriculum, Wisconsin Revised Version for EMT–Paramedic. Prerequisites: Healthcare Provider CPR course and Emergency Medical Technician–Basic, 10-531-101. Corequisites: 30-531-371. 30-531-374, 30-531-377, 30-531-378 and 30-531-379.

30-531-371 Pharmacology 2 credits
Offers an introduction to basic vocabulary and principles of pharmacology and clinical therapeutics. Study of fluid and electrolytes along with acid base balance are addressed. Administration of drugs, including intramuscular, subcutaneous, endotracheal and intravenous therapy will be studied along with the drug protocols. This course is based on the Department of Transportation National Standard Curriculum, Wisconsin Revised Version for EMT–Paramedic. Prerequisites: Healthcare Provider CPR course and Emergency Medical Basic–Basic, 10-531-101. Corequisites: 30-531-370, 30-531-374, 30-531-377, 30-531-378 and 30-531-379.

30-531-372 Trauma Care for the Paramedic 2 credits
Review of all systems, which include mechanism of injury, patient presentation and assessment, management techniques, including pharmacology and local protocols. Lecture format is used followed by a lab to utilize the knowledge learned in the classroom to apply in the laboratory setting. This course is based on the Department of Transportation National Standard Curriculum, Wisconsin Revised Version for EMT–Paramedic. Prerequisites: all first-semester courses. Corequisites: 30-531-373, 30-531-375, 30-531-376, 30-531-380 and 30-531-381.

30-531-373 EMS Operations 1 credit
Addresses the current issues involved in bioterrorism and the management of incidents involving hazardous materials. The operations, roles and responsibilities are addressed along with the resources available. This course is based on the Department of Transportation National Standard Curriculum, Wisconsin Revised Version for EMT–Paramedic. Prerequisites: all first-semester courses. Corequisites: 30-531-372, 30-531-375, 30-531-376, 30-531-380 and 30-531-381.

30-531-374 EMT-Paramedic Clinical 1 3 credits
Clinical experience provided during which the paramedic student utilizes the knowledge and skills learned in the classroom and labs. A preceptor will evaluate the student in the following areas: ambulatory care, emergency department, operating room and intensive care units. This course is based on the Department of Transportation National Standard Curriculum, Wisconsin Revised Version for EMT–Paramedic. Prerequisites: Healthcare Provider CPR course and Emergency Technician–Basic, 10-531-101. Corequisites: 30-531-370, 30-531-371, 30-531-377, 30-531-378 and 30-531-379.

30-531-375 Medical Emergencies 1 2 credits
Review provided of systems, definitions, signs and symptoms, assessment, management techniques including pharmacology and local protocols. The following specialties are addressed: gastroenterology, hematology, immune system, neurology, endocrinology, toxicology and communicable diseases. This course is based on the Department of Transportation National Standard Curriculum, Wisconsin Revised Version for EMT– Paramedic. Prerequisites include all courses in the first semester. Corequisites: 30-531-372, 30-531-373, 30-531-376, 30-531-380 and 30-531-381.

30-531-376 Emergency Care for Specialties 2 credits
Continuation of review of systems, definitions, signs and symptoms, assessment, management techniques including pharmacology and local protocols. The following specialties are addressed: gynecology, obstetrics, neonatology, pediatrics and geriatrics. This course is based on the Department of Transportation National Standard Curriculum, Wisconsin Revised Version for EMT–Paramedic. Prerequisites: all first-semester courses. Corequisites: 30-531-372, 30-531-373, 30-531-375, 30-531-380 and 30-531-381.

30-531-377 Advanced Cardiopulmonary Emergency Care 2 credits
Overview of the course includes the pulmonary, cardiovascular and renal systems. Systems, definitions, signs and symptoms, assessment and management techniques are reviewed and discussed. Labs include airway and ventilation management, ECG interpretation and pharmacology as it relates to the above systems. Upon completion of the course with a grade of a C or higher, the student will be eligible to attend the ACLS certification course. This course is based on the Department of Transportation National Standard Curriculum, Wisconsin Revised Version for EMT–Paramedic. Prerequisites: Healthcare Provider CPR course and Emergency Medical Technician-Basic, 10-531-101. Corequisites: 30-531-370, 30-531-371, 30-531-374, 30-531-378 and 30-531-379.

30-531-378 Adult and Pediatric Advanced Cardiac Life Support 1 credit
The American Heart Association sponsored courses of advanced certification in the adult and pediatric patients. This course is based on the Department of Transportation National Standard Curriculum, Wisconsin Revised Version for EMT– Paramedic. Prerequisites: Healthcare Provider CPR course and Emergency Medical Technician-Basic, 10-531-101. Corequisites: 30-531-370, 30-531-371, 30-531-374, 30-531-377 and 30-531-379.

30-531-379 EMT-Paramedic Clinical 2 3 credits
Clinical experience provided during which the paramedic student utilizes the knowledge and skills learned in the classroom and labs. A preceptor will evaluate the student in the following areas: hospital, clinic, public health department and home health. This course is based on the Department of Transportation National Curriculum, Wisconsin Revised Version for EMT–Paramedic. Prerequisites: 30-531-374.

30-531-380 Paramedic Seminar 1 credit
Allows the paramedic students' preceptors and clinical instructors to meet, plan, implement and evaluate the clinicals along with the field internship. Instruction on how to study for the licensure exam is included. Prerequisites: completion of all courses in the one-year diploma paramedic program with a grade of C or higher. Corequisite: 30-531-381.

30-531-381 EMT-Paramedic Internship 4 credits
Field Internship includes hours participating on-call, riding in the ambulance with direct patient care. Duties include direct patient care in the pre-hospital setting, documentation, maintenance and inventory of equipment, and duties as assigned by the preceptor and sponsoring agency. Students are eligible to sit for the National Registry Certification Exam upon successful completion of all Field Internship clinical hours. Upon passing the National Registry Exam for EMT–Paramedic, the student will be eligible for licensure by the State of Wisconsin. Prerequisites: completion of all courses in the one-year diploma paramedic program with a grade of C or higher. Corequisite: 30-531-380.

Career Potential:

With additional education and/or work experience, graduates may find employment as:

- **Emergency Room Technician**
- **Firefighter**
- **EKG Technician**
- **Paramedic**
- **Medical Laboratory Technician**
- **Home Health Aide**
- **Medical Assistant**
- **Registered Nurse**
- **Respiratory Therapist**
- **Physician's Assistant**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

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Rev: 03/10

Human Services Associate

Program Number: 10-520-3

Associate in Applied Science Degree

Human Services Program Cluster

Center for Human and Protective Services

Program offered at Downtown Education Center, Madison

For information call: (608) 245-5888 or (800) 322-6282 Ext. 5888

About the Program

The Human Services Associate program trains people to provide information, support, care and advocacy in a human service agency. Students acquire the skills needed to work with individuals, groups and communities. They learn to work with people of diverse racial, ethnic and cultural backgrounds.

General education courses included in the program teach students to better understand social problems. During the second year of the program, students have a fieldwork placement in a human service agency. Travel to fieldwork sites is necessary and is the student's responsibility. A Caregiver Background Check is required for fieldwork placements.

Some of the aptitudes and interests that are essential for human service students include emotional stability and maturity, an interest in working with people, and an appreciation of cultural diversity.

The Human Services Associate program is accredited by the State of Wisconsin Department of Licensing and Regulation as a training program for Substance Abuse Counselors. The Human Services Associate program is also accredited by the National Counsel on Standards in Human Services Education

Unique Requirements for Admission

High school diploma or GED/HSED with a grade point average of 2.0 or equivalent or satisfactory completion of 12 college credits. A COMPASS Reading score of 75 or higher, or an ASSET Reading score of 39 or higher, is required for the following first semester courses: Intro to Human Services, 10-520-105; Orientation to Human Services Populations, 10-520-106; and Interviewing, 10-520-117.

Prior to taking 10-520-139 Human Services Agency Experience 1, students will be required to complete a Background Information Disclosure and Criminal History Check (CHC) prior to placement in a human services agency. Information obtained from the CHC may affect the ability to secure a fieldwork placement and the ability to find employment after graduation.

Unique Requirements for Graduation

Students must achieve at least a 2.0 (C) grade in all program core courses and an overall 2.0 (C) grade point average.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-520-105	Introduction to Human Services Δ	3	3-0
10-520-106	Orientation to Human Services Populations Δ	3	3-0
10-520-117	Interviewing Δ†	3	3-0
10-520-135	Issues in Alcohol and Other Drug Abuse Δ†	3	3-0
10-801-195	Written Communication **OR**	3	3-0
20-801-201	English 1*	(3)	(3-0)
10-809-199	Psychology of Human Relations **OR**	3	3-0
20-809-231	Introduction to Psychology*	(3)	(3-0)
	Semester Total	**18**	
Second Semester			
10-520-116	Group Work Skills Δ†	3	3-0
10-520-130	Social Change Skills Δ	3	3-0
10-801-197	Technical Reporting **OR**	3	3-0
20-801-202	English 2*	(3)	(3-0)
10-804-107	College Math **OR**	3	4-0
20-804-201	Intermediate Algebra*	(3)	(3-0)
10-809-197	Contemporary American Society **OR**	3	3-0
20-809-203	Introduction to Sociology*	(3)	(3-0)
10-520-136	Counseling Alcoholics and Other Drug Abusers†	3	3-0
	Semester Total	**18**	
SECOND YEAR			
First Semester			
10-520-139	Human Services Agency Experience 1 Δ**	4	0-16
10-520-157	Human Services Counseling Skills† Δ	3	3-0
10-520-188	Human Services Experience Conference 1 Δ**	3	3-0
10-809-188	Developmental Psychology **OR**	3	3-0
10-809-127	Human Development **OR**	(3)	(3-0)
20-809-233	Developmental Psychology* Δ	(3)	(3-0)
	Elective	3	E
	Semester Total	**16**	
Second Semester			
10-520-120	Community Service Agencies Δ**	3	3-0
10-520-140	Human Services Agency Experience 2 Δ**	5	0-20
10-520-189	Human Services Experience Conference 2 Δ**	3	3-0
10-809-172	Race, Ethic & Diversity Studies **OR**	3	3-0
20-809-217	Race, Class, Gender*	(3)	(3-0)
	Elective	3	E
	Semester Total	**17**	

*College transfer equivalent courses.
ΔPrerequisites required; consult department office.
**Corequisites: courses must be taken at the same time.
†AODA Certification Courses

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s. A COMPASS Reading score of 75 or higher, an e-Write score of 6 or higher, and a Writing score of 69 or higher are required for the following first semester courses: Intro to Human Services, 10-520-105; Orientation to Human Services Populations, 10-520-106; and Interviewing, 10-520-117.

Madison Area Technical College

Human Services Associate

Program Number: 10-520-3

Program Courses

Human Services Associate Course Prerequisites
Students enrolling in the courses identified within this program must meet the following requirements: High school diploma or GED/HSED with a grade point average of 2.0 or equivalent. A COMPASS Reading score of 75 or higher, an e-Write score of 6 or higher, and a Writing score of 69 or higher are required for the following first semester courses: Intro to Human Services, 10-520-105; Orientation to Human Services Populations, 10-520-106 and Interviewing, 10-520-117.

10-520-105 Introduction to Human Services 3 credits
Examines the scope, values and principles of the human service profession. Introduces the typical roles and duties of human service workers. Students assess their own motivations, attitudes and interests. In addition to the regular classroom hours, 45 hours of volunteer work in a community human services agency are required. Prerequisites: Human Services Associate course prerequisites.

10-520-106 Orientation to Human Services Populations 3 credits
Introduces social problems that contribute to the dysfunction of individuals, groups, families and communities. Addresses problems, needs, conditions and events that bring people to human service organizations. Prerequisites: Human Services Associate course prerequisites.

10-520-116 Group Work Skills 3 credits
Covers skills needed to organize, facilitate and participate in groups. Through reading and experiential exercises, students learn about group process, stages of group development, leadership styles, their own behavior in a group and the types of groups used in human services work. Prerequisite: 10-520-117.

10-520-117 Interviewing 3 credits
Students learn principles and techniques needed to conduct informational and supportive interviews. Students practice interviewing skills during class. Prerequisites: Human Services Associate course prerequisites.

10-520-120 Community Service Agencies 3 credits
Focuses on characteristics and functions of human services organizations and the roles of human service workers in those organizations. Covers organizational skills of assessment, planning, budgeting, grant writing, evaluation and consulting. Prerequisite: 10-520-105, 10-520-139, 10-520-188 and concurrent enrollment in 10-520-140 and 10-520-189.

10-520-130 Social Change Skills 3 credits
Introduces principles and strategies of planned change and the role of human services workers as community organizers. Covers how consumers affected by a social problem can clearly define an issue, set a goal and organize to bring about social change. Prerequisite: 10-520-106.

10-520-135 Issues in Alcohol and Other Drug Abuse 3 credits
Provides students with a basic understanding of the use and abuse of alcohol and other drugs. Emphasizes historical and social perspectives on drug use, trends of use and legal and social responses to illicit drug use. Additionally, this course provides an accurate description of the effects of psychoactive drugs, identifies methods of substance abuse treatment and introduces the student to local treatment services. Prerequisites: Human Services Associate course prerequisites.

10-520-136 Counseling Alcoholics and Other Drug Abusers 3 credits
Trains students in basic listening and responding skills, familiarizes students with the 12 core functions performed by AODA counselors (screening, intake, orientation, assessment, treatment planning, counseling, case management, crisis intervention, client education, referral, reports, record keeping and consultation) and provides a structured learning environment in which students can develop skills in these core functions.

10-520-139 Human Services Agency Experience 1 4 credits
Students develop skills as human services workers by working directly or indirectly with clients in community agencies 16 hours per week. An agency supervisor and a faculty member closely supervise students. The human services staff makes field placement assignments. Prerequisites: 10-520-105, 10-520-116, 10-520-117 and concurrent enrollment in 10-520-188.

10-520-140 Human Services Agency Experience 2 5 credits
Students continue their on-the-job training in community agencies for 20 hours per week. By the end of the course, students have the skills of an entry-level human services worker. Prerequisites: 10-520-139 and 10-520-188, and concurrent enrollment in 10-520-120 and 10-520-189.

10-520-157 Human Services Counseling Skills 3 credits
Introduces basic concepts of ego counseling, Rogerian counseling, transactional analysis, rational-emotive therapy, reality therapy, narrative therapy and solution focused therapy. Covers how counseling theories identify and define problems, explain personality development and treat problem situations. Prerequisites: 10-520-116 and 10-520-117.

10-520-188 Human Services Experience Conference 1 3 credits
A small-group seminar designed as a companion/supportive course to the agency experience. Relates theory and principles of practice to agency field-study experience. Students learn to develop supportive relationships with clients and apply the values of confidentiality and client self-determination. They learn how their values and personal experiences affect their work with clients. Prerequisites: 10-520-105, 10-520-116, 10-520-117 and concurrent enrollment in 10-520-139.

10-520-189 Human Services Experience Conference 2 3 credits
Students develop skills specific to their fieldwork placement and complete a major project for their fieldwork agency. Taken concurrently with 10-520-120 and 10-520-140. Prerequisites: 10-520-139 and 10-520-188.

Recommended Electives

10-520-141	Introduction to Community Mental Health†	3 credits
10-520-150	Alcohol and other Drug Abuse – Special Populations†	3 credits

6 elective credits are required for the program and can be any six associate degree or college transfer credits of your choice.

Career Potential:

- **Case Aide**
- **Case Manager**
- **Community Support Worker**
- **Counselor**
- **Income Maintenance Worker**
- **Information and Referral Specialist**
- **Intake Worker**
- **Outreach Worker**
- **Prevention Worker**
- **Resident Manager**
- **Social Services Assistant**
- **Volunteer Coordinator**

With additional education and/or work experience, graduates may find employment as:

- **Alcohol and Other Drug Abuse Counselors**
- **Program Directors**
- **Social Workers**
- **Supervisors**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev: 03/10

Criminal Justice—Law Enforcement

Program Number: 10-504-1

Associate in Applied Science Degree

Protective Services Program Cluster

Center for Human and Protective Services

Program offered at the West Campus

For information call: (608) 245-5888 or (800) 322-6282 Ext. 5888

About the Program

Providing the academic and professional training necessary to become a law enforcement officer, the Criminal Justice– Law Enforcement program provides necessary skills in behavioral sciences and written and verbal communication. Police officer efficiency and effectiveness increases with a better understanding of the daily problems of society and knowledge of law enforcement techniques.

Graduates seeking employment will be required to pass a physical exam and meet physical fitness standards; have possession of a valid driver's license and a good driving record; and have no conviction of a felony offense. Positions require a background investigation, psychological testing and mandatory drug testing. An applicant for employment as a law enforcement officer must possess either 1) a two-year associate degree from a Wisconsin technical college or its accredited equivalent from another state or 2) a minimum of 60 fully accredited college-level credits.

Unique Requirements for Admission

High school diploma, HSED or GED with a minimum grade point average of 2.0 or equivalent, or satisfactory completion of 12 college credits. Students should also have basic computer skills.

Unique Requirements for Graduation

Students must achieve at least a 2.0 (C) grade in all program core courses and an overall 2.0 (C) grade point average.

Criminal Justice Course Prerequisites
Students enrolling in the courses identified within this program must meet the following requirements: High school diploma or GED/HSED with a grade point average of 2.0 or equivalent.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-504-170	Introduction to Corrections Δ	3	3-0
10-504-900	Introduction to Criminal JusticeΔ	3	3-0
10-801-195	Written Communication **OR**	3	3-0
20-801-201	English 1*	(3)	(3-0)
10-804-107	College Math **OR**	3	4-0
20-804-201	Intermediate Algebra*	(3)	(3-0)
10-809-199	Psychology of Human Relations **OR**	3	3-0
20-809-231	Intro to Psychology*	(3)	(3-0)
10-890-100	College Student Success **OR**	1	1-0
20-890-200	College Success*	(1)	(1-0)
	Semester Total	**16**	
Second Semester			
10-504-121	Patrol ProceduresΔ	3	3-0
10-504-902	Criminal LawΔ	3	3-0
10-504-904	Juvenile LawΔ	3	3-0
10-801-196	Oral/Interpersonal CommunicationΔ **OR**	3	3-0
20-801-202	English 2*	(3)	(3-0)
10-809-122	Intro to American Government **OR**	3	3-0
10-809-195	Economics **OR**	(3)	(3-0)
20-809-221	American National Government*	(3)	(3-0)
10-809-197	Contemporary American Society **OR**	3	3-0
20-809-203	Intro to Sociology	(3)	(3-0)
	Semester Total	**18**	

SECOND YEAR			
First Semester			
10-504-103	Professional Development Seminar for Criminal JusticeΔ	1	1-0
10-504-901	Constitutional LawΔ	3	3-0
10-504-905	Report WritingΔ	3	3-0
10-504-906	Criminal InvestigationΔ	3	2-2
10-504-908	Traffic TheoryΔ	3	3-0
10-531-150	Emergency Response for Protective ServicesΔ	2	1-1
	Elective	3	E
	Semester Total	**18**	
Second Semester			
10-504-143	Criminology for Law EnforcementΔ	3	3-0
10-504-152	Emergency ManagementΔ	3	3-0
10-504-903	Professional CommunicationsΔ	3	3-0
10-504-907	Community Policing StrategiesΔ	3	3-0
10-809-172	Race, Ethnic and Diversity Studies **OR**	3	3-0
20-809-217	Race, Class, Gender*	(3)	(3-0)
	Elective	3	E
	Semester Total	**18**	

*College transfer equivalent courses.
ΔPrerequisites required. Consult department office.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Madison Area Technical College

Criminal Justice—Law Enforcement

Program Number: 10-504-1

Program Courses

10-504-103 Professional Development Seminar for Criminal Justice **1 credit**
This course is designed for second year students who are preparing to enter into the job search process. Prepares the student for the hiring process for a Criminal Justice career including applications, resumes, interviews and hiring process standards. Also incorporates the B.E.S.T. (Basic Employability Skills Training) curriculum developed by the Manhattan Area Technical College and the Kansas Department of Commerce. Prerequisite: completion of first-year courses.

10-504-121 Patrol Procedures **3 credits**
Examines the patrol operation as it exists in the modern police department. Explores the historical development of patrol, the various styles, techniques of decision making, hazards, patrol techniques, police subculture and the future of policing. Identifies techniques in dealing with disasters, hazardous materials, mental health acts, victim assistance and enforcement of alcohol beverage laws. Prerequisites: 10-504-900 and 10-504-170.

10-504-143 Criminology for Law Enforcement **3 credits**
Exposes criminal justice students to these questions: what is crime and why is it a problem? Focusing on those questions, the course will look at what is known about crime and how it is known. Also touches on crimes, criminals and theories, while focusing on the police in the criminal justice system. Prerequisite: completion of first-year courses.

10-504-152 Emergency Management **3 credits**
Introduces the student to the principles, theories, and practices of emergency management. The philosophy of comprehensive Emergency Management will be discussed including mitigation, preparedness, response and recovery. In addition, students will obtain ICS-100 and FEMA IS-700 certification. Prerequisite: completion of first-year courses.

10-504-170 Introduction to Corrections **3 credits**
Examines the concept of punishment and its form, functions, and enforcement throughout history, with an emphasis on the operation, structure, clientele, and issues confronting the institutions, agencies, and programs encompassing the corrections system including jails, prisons, and probation and parole. Prerequisite: Criminal Justice course prerequisites.

10-504-900 Introduction to Criminal Justice **3 credits**
Explore the role law enforcement officers play in a democracy and apply this knowledge in classroom exercises, including role-plays and other scenario-based training. Belief systems, social pressures, moral problems, decision making and the consequences of decisions are discussed. Identify the resources available in communities to assist law enforcement officers. Discuss issues involved in policing in a diverse society and identify strategies for working effectively with a diverse community. Prerequisite: Criminal Justice course prerequisites.

10-504-901 Constitutional Law **3 credits**
Introduces the student to the legal process, procedure and forum in which guilt or innocence is determined. Explores the history and development of criminal evidence law and the necessity for having legal evidence. Prerequisite: 10-504-902.

10-504-902 Criminal Law **3 credits**
Provides an in-depth view of criminal law. Familiarizes students with the basic criminal justice process and procedures. Analyzes the substantive criminal law, its scope and definition, classification and the elements constituting the more common crimes. Prerequisites: 10-504-900 and 10-504-170.

10-504-903 Professional Communications **3 credits**
This course familiarizes the student with the tactical skills utilized by Criminal Justice Professionals to handle situations without physical force. It explores dialog skills, and strategies for overcoming barriers through effective problem solving. The course familiarizes students with interpersonal techniques for various professional contacts, conflict resolution and court proceedings. Prerequisite: 10-504-901.

10-504-904 Juvenile Law **3 credits**
Study of juvenile justice system which emphasizes factors and causes that explain delinquent behavior and the juvenile as a victim of child abuse and neglect. The course examines the philosophy and workings of the juvenile court and Wisconsin's Children's (Chapter 48) and Juvenile Codes (Chapter 938) beginning with the police and ending with the disposition of a child in need of protective services (C.H.I.P.S.) or a delinquent juvenile. Also examines sensitive crimes (Chapter 948). Prerequisites: 10-504-900 and 10-504-170.

10-504-905 Report Writing **3 credits**
In this course, students will learn how to write a wide variety of law enforcement reports to accurately and fairly convey necessary information for use by investigators, prosecutors and the public. Understanding who will be using these reports and the multitude of audiences and reason they will be using the law enforcement report is an essential skill. Essential to all law enforcement personnel is to take effective field notes and translate pertinent information from these notes into official detailed police reports. Prerequisites: 10-504-902, 10-801-195 and 10-801-196.

10-504-906 Criminal Investigation **3 credits**
In this course, students learn how to recognize, process and preserve physical evidence. Students learn of law enforcement's response to a victim of crime including the dynamics of victimization and victim's rights, and integrate professional communication with law enforcement's responsibilities to victims. Students also learn the statutory elements of each of the sensitive crimes and the dynamics, impacts and investigative strategies unique to them. Prerequisites: 10-504-902 and 10-504-121.

10-504-907 Community Policing Strategies **3 credits**
Identifies principles, techniques and behaviors that promote community service and effective interaction with a multi-cultural, multiethnic society. Also identifies principles and techniques of decision making and problem-oriented policing. Explores the principles and techniques of crime prevention. Prerequisite: completion of first-year courses.

10-504-908 Traffic Theory **3 credits**
Students learn knowledge, skills and attitudes necessary for effective traffic law enforcement and accident investigation. Student learning goals will include demonstrating knowledge of goals, methods and statutes pertaining to traffic law enforcement; preparing and issuing traffic law citations, ranging from verbal warning to arrest; demonstrating correct procedures for investigating the offense of operating a motor vehicle while under the influence of alcohol or controlled substances; demonstrating knowledge of traffic control techniques, day and night; and demonstrating knowledge of principles and methods of traffic accident investigation. Prerequisites: 10-504-902 and 10-504-121.

Recommended Electives

10-504-145 Investigative Photography 3 credits

6 elective credits are required for the program and can be any six associate degree or college transfer credits of your choice.

Career Potential:

- **Law Enforcement Officers** In city, county, state and federal law enforcement departments.
- **Private Security Officers**
- **Investigators**
- **Correctional Officers**
- **Juvenile Detention Workers**
- **911 Dispatcher**
- **Court Clerk**
- **Border Patrol**

With additional education and/or work experience, graduates may find employment as:

- **Detectives**
- **Sergeants**
- **Lieutenants**
- **Captains**
- **Chiefs**
- **Probation and Parole Officers**
- **Federal Air Marshall**
- **Crime Scene Investigator**
- **Department of Homeland Security**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev: 03/10

Criminal Justice—
Law Enforcement Academy

Program Number: 30-504-1

Less-Than-One-Year Diploma

Protective Services Program Cluster

Center for Human and Protective Services

Program offered at the West Campus

For information call: (608) 246-5297 or (800) 322-6282 Ext. 5297

About the Program

The Law Enforcement Academy prepares candidates for entry-level positions as law enforcement officers at the municipal, county and state level. This program is limited to sworn law enforcement officers assigned by their department with the approval of the Wisconsin Department of Justice. Exceptions to this are granted on a space available basis to candidates who complete the process identified below. Admission is restricted to those who qualify under the Administrative Code of the Wisconsin Law Enforcement Standards Board.

Graduates seeking employment will be required to pass a physical exam and meet physical fitness standards; have possession of a valid driver's license and a good driving record; and have no conviction of a felony offense. Positions require a background investigation, psychological testing and mandatory drug testing. An applicant for employment as a law enforcement officer must possess either
1) a two-year associate degree from a Wisconsin technical college or its accredited equivalent from another state or 2) a minimum of 60 fully accredited college-level credits.

Unique Requirements for Admission

Students seeking admission to the Law Enforcement Academy must possess either 1) a two-year associate degree from a Wisconsin technical college with a grade point average of 2.0 or higher or its accredited equivalent from another state or
2) a minimum of 60 fully accredited college-level credits with a grade point average of 2.0 or higher.

Students applying must provide proof of a valid driver's license with a good driving record and a Crime Information Bureau Identification Records Request. Students must also pass an interview with a score of 76% or higher. Students accepted into the Law Enforcement Academy must obtain a medical/physical examination, drug test, and submit the Physician's Medical Screening Advisory Report for Basic Law Enforcement Officer Training.

For specific information and application materials, applicants should call 246-5297.

Certification Requirements

Completion of the basic course does not equal certification. Certification is granted by the Law Enforcement Standards Board (LESB) only upon employment as a law enforcement officer and after meeting all employment and training standards required by the LESB.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2010-2011 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their inside MATC account for specific graduation requirements. Program requirements are subject to change.

Course		Credits
30-504-301	Policing in America	1
30-504-302	The Legal Context	2
30-504-303	Tactical Skills	3
30-504-304	Relational Skills	3
30-504-305	Patrol Procedures	4
30-504-306	Investigations	2
30-531-317	Emergency Response for Protective Services	1
	Total	**16**

Note: A copy of the essential functions necessary to successfully complete the program of study is available upon request from the department office.

Program Courses

30-504-301 Policing in America 1 credit
Learn the rules and procedures of the academy and how the various elements of the criminal justice system relate as well as the importance of professionalism. Explore the role law enforcement officers play in a democracy and apply this knowledge in classroom exercises, including role-plays and other scenario-based training. Belief systems, social pressures, moral problems, decision making and the consequences of decisions are discussed. Identify the resources available in communities to assist law enforcement officers. Discuss issues involved in policing in a diverse society and identify strategies for working effectively with a diverse community. Course covers Wisconsin requirements for written law enforcement agency policies and procedures.

30-504-302 The Legal Context 2 credits
Covers the structure of the criminal justice system, including criminal procedure. Learn the legal bases for law enforcement action such as arrest, use of force and search and seizure, as well as the limits on law enforcement activity. Learn the classifications of crimes and other violations including felonies, misdemeanors, and ordinance violations, and the elements of crimes listed in the criminal code. Laws and procedures that affect juveniles, including those related to taking a juvenile into custody, are discussed.

30-504-303 Tactical Skills 3 credits
Learn the basis for and limits to use of force by Wisconsin officers including specific techniques for intervention covered in the Wisconsin system of Defense and Arrest Tactics. Learn the necessary weapons handling skills and how to care for and maintain duty handguns. Learn to shoot quickly and accurately under a variety of conditions including under low light, while moving and from behind cover. Learn the basics of room clearing, tactical movement, use of cover and concealment, and application to emergency situations.

30-504-304 Relational Skills 3 credits
Learn how to write a wide variety of law enforcement reports to accurately and fairly convey necessary information for use by investigators, prosecutors and the public. Explore the role of communication in law enforcement and develop and apply specific professional communication skills and strategies in a variety of simulated situations. The course covers principles, guidelines and techniques for proper law enforcement response to persons with possible mental disorders, alcohol or drug problems and/or developmental disabilities and the legal bases, requirements and practical guidelines for conducting emergency detentions and protective placements of persons. The basics of presenting effective court testimony also are discussed. Explore evolving police strategies, activities and attitudes that build effective law enforcement and community relationships, as well as problem-oriented policing strategies.

30-504-305 Patrol Procedures 4 credits
Become familiar with Wisconsin's traffic laws and ordinances, including those related to operator licensing and vehicle registration and equipment. Learn to enforce these laws, complete Wisconsin Uniform Traffic Citations and to direct and control traffic effectively. Material covered includes steps taken as first-in officer to stabilize and manage a complex scene, investigate traffic accidents, take appropriate enforcement actions and prepare accident reports. Learn emergency vehicle operation including basic patrol operation, emergency vehicle response and pursuit driving. Understand the legal bases for making vehicle contacts, how to conduct a threat assessment and how to conduct different types of vehicle contact, including how to administer and interpret the Operating a Motor Vehicle While Intoxicated/Standardized Field Sobriety Test (OMVWI/SFST).

30-504-306 Investigations 2 credits
Provides techniques and procedures necessary to interview or interrogate adult and juvenile witnesses, suspects and victims. Learn how to recognize, process and preserve physical evidence and how to respond to crime victims. Explore the dynamics of victimization and victim's rights. Learn the statutory elements of each of the sensitive crimes and the dynamics, impacts and investigative strategies unique to these crimes.

30-531-317 Emergency Response for Protective Services 1 credit
Learn how to perform an initial medical assessment for injury or medical condition, how to provide immediate treatment for a variety of injuries and conditions, and how to perform CPR and use an automated emergency defibrillator.

Career Potential:

- **Revenue Agent**
- **Deputy Sheriff**
- **Police Officer**
- **Special Agent**
- **Park Ranger**
- **Conservation Warden**

With additional education and/or work experience, graduates may find employment as:

- **Detective**
- **Sergeant**
- **Lieutenant**
- **Captain**
- **Chief**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev: 03/10

Digital Forensics Certificate

Program Number: 90-504-1

Certificate

Protective Services Program Cluster

Center for Human and Protective Services

Program offered at West Campus

For information call: (608) 245-5882 or (800) 322-6282 Ext. 5882

About the Program

The Digital Forensics Certificate is a certificate program for individuals interested in pursuing careers in digital forensics for law enforcement agencies or a private company. The certificate is designed for working law enforcement professionals and IT security personnel. This certificate will give the student a solid foundation in the area of digital forensics.

Digital Forensics is the application of forensic science techniques to the acquisition and analysis of evidence that exists in digital form (e.g. evidence found in files on hard drives, in emails, in network activity, etc).

In an age when computers hold the key to everything from terrorist plots to accounting scandals, nearly every crime can potentially leave digital evidence. They also serve as record-keepers of conversations, files and transactions. Computer forensic analysts work for a variety of organizations in pursuit of that digital evidence.

As a Computer & Digital Forensics student, you'll learn about the law, the digital investigative process, and computer and network technology. Develop the specialized skills to recover, preserve, and evaluate forensic evidence to support civil, criminal, and internal investigations. Focus on how to discover and document violations of computer usage in corporate and public agency settings. Learn the laws and procedures to successfully capture criminal use of the internet, email, and electronic files.

Unique Requirements for Completion

The certificate will be awarded upon completion of the requirements with a minimum of a 2.0 grade average and no course grade lower than a C. Students are responsible for contacting the Department upon completion of the required classes. Certificate will be awarded after completion of all requirements is verified.

Required Prerequisites

A+ Certification or its equivalent—this will be determined on a case by case basis.

- Computer Hardware Essentials 10-154-189
- A+ IT Technician 10-154-191
- Criminal Law—10-504-113
- Constitutional Law—10-504-115

Curriculum

Courses		Credits	Hrs/week Lec-Lab
10-504-185	Introduction to Computer Forensics∆	3	3-0
10-504-186	Introduction to Internet & Network Concepts ∆	3	3-0
10-504-189	Introduction to Video Evidence ∆	3	3-0
10-504-196	Ethics	1	3-0
10-504-187	Legal Issues and Computer Forensics ∆	3	3-0
10-504-195	Small Devices∆	3	3-0
10-504-188	Advanced Computer Forensics/Practicum ∆	3	3-0
	Total	**19**	

∆Prerequisites required

Application Requirements

- Cannot have any abuse of technology in their background
- Criminal history cannot have any convictions for computer crimes
- Must have a 2.0 GPA
- Non law enforcement persons must take criminal law and constitutional law before taking Legal Issues, small devices and advanced computer forensics/practicum
- Must complete an application for certificate
- Must go through an interview
- Final entrance into certificate is by department consent

How to Apply

- Call Garilyn Truttschel 608-245-5882 (Program Director) for application packet

Program Courses

10-504-185 Introduction to Computer Forensics 3 credits
Introductory computer forensics concepts, terminology and management of digital evidence. This course will cover the identification and collection and preservation of computer related and digital evidence, the acquisition of digital evidence, basic forensic analysis concepts and presentation of digital evidence to the investigator, the DA's office, to Judges and to Juries. The course will also cover the incorporation of digital evidence into the investigation and prosecution of criminal investigations. Overview of Forensic Toolkit & Ultimate ToolKit, Overview of EnCase, Overview of Paraben's Device Seizure, Overview of various cell phone applications, Overview of other available tools for forensically sound preview and acquisition (Helix, Knoppix, etc...) Overview of live acquisition tools. Overview of forensic hardware solutions – forensic computers, hardware writes blocking tools.

10-504-186 Introduction to Internet & Networking Concepts 3 credits
Internet related investigations, terminology and management of evidence gathered from online sources. Internet service provider overview. Hacking investigations, chat room, email, website, phishing online auction sites, Instant messaging, newsgroups and Bulletin boards, internet related fraud methods, BotNets, viruses, worms, etc... This course would include an overview of how various computer networks work, how to read log files, IP addressing schemes, IP telephony, overview of various file sharing networks commonly found in forensic investigations. Basic overview of network intrusion detection and response and reporting. Overview of Netanalysis, Kazaalyzer, and other standard forensic tools.

10-504-189 Introduction to Video Evidence 3 credits
Video is one of the most powerful tools to help law enforcement investigate and solve crimes. Video is one of the most prevalent forms of evidence collected in modern criminal investigations. This course is designed to introduce the student to various aspects of video evidence within the criminal justice system. Students will gain an overview of the various types of video evidence and their respective roles in criminal investigations. Basic, practical knowledge and experience will be gained in video evidence collection, image comparison, report writing and court testimony. Competency will be tested through quizzes, written tests and hands-on performance and moot court.

10-504-196 Ethics 1 credit
Examines the ethical issues related to person involved in the career choice of digital forensics.

10-504-187 Legal Issues and Digital Evidence 3 credits
4th Amendment, ECPA, HIPPA, FERPA, Search warrants (computer, online), Subpoenas, Preservation Letters & 2703, Patriot Act as it affects digital evidence, Dealing with ISPs, Wisconsin Statutes covering computer related crimes (Child Pornography, Use of Computer to facilitate child sex crime, child enticement, stalking, computer crimes statute) Federal Computer Crimes statutes. Corporate law and e-Discovery issues. Digital evidence in the courtroom – presentation of data retrieved from computers or online sources. Expert Testimony in the courtroom.

10-504-195 Small Devices 3 credits
Includes cell phones, smart phones, PDAs, and related storage devices, are a growing source of digital evidence in the forensics profession, and present unique challenges for forensic examiners. This course will introduce fundamental concepts in mobile communications, including an overview of cell phone technology and networks, sources of potential evidence, evidence handling considerations, and small device forensic processes, and documentation techniques. Students will have the opportunity to work hands on with small device forensic tools and technology.

10-504-188 Advanced Computer Forensics Concepts//Practicum 3 credits
Overview of advanced computer forensics topics such as encryption, password cracking tools, data hiding techniques, stegonography, anti-forensic tools and their effect on investigations, forensic problem solving (reconstruction of web pages from web cache, reverse engineering of P2P networks, images, etc.) INFO2 (Recycle Bin) Files, In depth discussion of file carving & Windows artifacts, hidden partitions, thumbs.db files, advanced MAC (modified, accessed, created) time discussion, metadata. Microsoft Vista & Bitlocker, X Box Forensics, Digital Deception. This course will also cover an overview of how Cell Phone networks, Cell Phones, Personal Data Assistants, and other portable devices work. This course would be a culmination of skills from previous courses. Students would be expected to take a case study from beginning to end of investigation and court process. The students would receive a case study problem, and would have to write incident reports, collect evidence, acquire digital evidence, perform forensic examination of several types of digital evidence, write reports regarding the forensic exams, participate in trial prep, and courtroom testimony.

Career Potential:

- **Digital Forensics Unit in a Law Enforcement Agency**
- **Enhance skills for a IT security professional**

More detailed and updated information on this program may be available at: matcmadison.edu. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

Rev: 03/10

Fire Protection Technician
Fire Service Certification

Program Number: 10-503-2/30-503-2

Protective Services Program Cluster

Center for Human and Protective Services

Program offered at Madison Campuses

For information call: (608) 246-6911 or (800) 322-6282 Ext. 6911

Fire Protection Technician

Associate in Applied Science Degree

The constant changes and growing complexities of modern living and the environment are creating a demand for college-trained people in the fire-service field. Opportunities for graduates exist with municipal fire departments, insurance and government agencies, and in the field of industrial safety. This program of study is designed to meet the needs of personnel currently employed in fire service positions and those desiring preparation for employment. Classes should be taken in the sequence listed.

Unique Requirements for Admission

High school diploma, HSED or GED with a grade point average of 2.0 or equivalent or satisfactory completion of 12 college credits. Students should also have one year of high school algebra and one year of high school science. A COMPASS Reading score of 75 or higher, or an ASSET Reading score of 39 or higher is required for the Fire Recruit Academy 10-503-100 course; and a COMPASS Reading score of 68 or higher is required for the EMT-Basic 10-531-101 course which are both part of the first year of the program. CPR certification at a professional level is also required for EMT Basic.

Unique Requirements for Graduation

Students must achieve at least a 2.0 (C) grade in all program core courses and an overall 2.0 (C) grade point average.

Curriculum

Fire Protection Technician

FIRST YEAR

			Hrs/week
First Semester		**Credits**	**Lec-Lab**
10-503-139	Principles of Emergency Services	3	3-0
10-503-143	Building Construction	3	3-0
10-531-101	Emergency Medical Technician-BasicΔ	4	4-0
10-801-195	Written Communication **OR**	3	3-0
20-801-201	English 1*	(3)	(3-0)
10-804-107	College Mathematics **OR**	3	4-0
20-804-201	Intermediate Algebra*	(3)	(3-0)
10-809-199	Psychology of Human Relations **OR**	3	3-0
20-809-231	Introduction to Psychology*	(3)	(3-0)
	Semester Total	**19**	

Second Semester

10-503-141	Firefighter 2/Hazardous Materials Operations **AND**	1	1-0
10-503-142	Fire Fighting Principles **OR**	4	4-0
10-503-100	Fire Recruit AcademyΔ	(5)	(6-6)
10-503-144	OSHA for the Fire ServiceΔ	3	3-0
10-801-196	Oral/Interpersonal Communication **OR**	3	3-0
20-810-201	Fundamentals of Speech Composition*	(3)	(3-0)
10-806-134	General Chemistry	4	3-2
10-807-151	Physical Education-Fire Safety Technician	1	1-1
	Semester Total	**16**	

SECOND YEAR

First Semester

10-503-151	Fire PreventionΔ	4	4-0
10-503-152	Hazardous Materials TechnicianΔ	4	4-0
10-503-157	Fire InvestigationΔ	3	3-0
10-801-197	Technical Reporting **OR**	3	3-0
20-801-202	English 2*	(3)	(3-0)
10-809-197	Contemporary American Society **OR**	3	3-0
20-809-203	Intro to Sociology*	(3)	(3-0)
	Semester Total	**17**	

Second Semester

10-503-147	Fire Protection SystemsΔ	4	4-0
10-503-148	Fire Administration 1Δ	3	3-0
10-503-155	Fire Protection HydraulicsΔ	4	5-0
10-503-156	Strategies, Tactics & Incident ManagementΔ	4	4-0
	Elective	3	E
	Semester Total	**18**	

*College transfer equivalent courses.

ΔPrerequisites required; consult department office.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.

Fire Service Certification

30-503-300	Fire Recruit Academy Δ **OR**	5	6-6
10-503-100	Fire Recruit AcademyΔ	(5)	(6-6)
30-531-301	Emergency Medical Technician-BasicΔ **OR**	4	4-4
10-531-101	Emergency Medical Technician-BasicΔ	(4)	(4-4)
	Total	**9**	

Program Courses

Fire Protection Technician
Associate in Applied Science Degree

10-503-139 Principles of Emergency Services 3 credits
Provides an overview to fire protection; career opportunities in the fire protection and related fields; philosophy and history of fire protection/service; fire loss analysis; organization and function of public and private fire protection services; fire departments as part of local government; laws and regulations affecting the fire service; and fire service nomenclature.

10-503-141 Firefighter 2/Hazardous Materials Operations 1 credit
This course meets the NFPA requirements for firefighters. Provides the first responders with the awareness and knowledge to identify hazardous materials and to safely respond to hazardous materials (hazmat) emergencies

10-503-142 Fire Fighting Principles 4 credits
Describes basic fire behavior, and techniques used to control structural and related fire emergencies, and life safety practices. Students perform all practical evolutions necessary to control and extinguish fires and otherwise meet all requirements for Firefighter 1 certification with the State of Wisconsin**.**

10-503-143 Building Construction 3 credits
Covers the basic principles of construction and specific classifications of construction as they relate to fire prevention, fire resistance, fire and smoke containment, and performance under fire conditions. Specific building styles, including high-rise and multi-family dwelling units, are also studied.

10-503-144 OSHA for the Fire Service 3 credits
This course introduces he basic concepts of occupational health and safety as it relates to emergency service organizations. Topics include risk evaluation and control procedures for fire stations, training sties, emergency vehicles and emergency situations involving fire, EMS, hazardous materials and technical rescue. Upon completion of this course, students should be able to establish and manage a safety program in an emergency service organization. Prerequisites: 10-503-139 and 10-503-143.

10-503-147 Fire Protection Systems 4 credits
Provides information relating to the features of design and operation of fire detection and suppression systems. Prerequisites: 10-503-151, 10-503-152 and 10-503-157

10-503-148 Fire Administration 1 3 credits
This course introduces the student to the organization and management of a fire department and the relationship of government agencies to the fire service. Emphasis on fire service leadership from the perspective of the company officer. Prerequisites: 10-503-151, 10-503-152 and 10-503-157

10-503-151 Fire Prevention 4 credits
Provides functional information regarding the history and philosophy of fire prevention, organization and operation of a fire prevention bureau, use of fire codes, and identification and correction of fire hazards. Meets all requirements for Fire Inspector 1 certification with the State of Wisconsin. Prerequisites: 10-503-139, 10-503-143 and 10-503-144.

10-503-152 Hazardous Materials Technician 4 credits
Examines characteristics relating to hazardous materials including problems of recognition and mitigation. Prepares students for Hazardous Materials Technician level. Prerequisites: 10-503-139, 10-503-143 and 10-503-144.

10-503-155 Fire Protection Hydraulics 4 credits
Provides a foundation of knowledge in order to understand the principles of the use of water in fire protection. Meets all the requirements for Driver Operator-Pumper certification with the State of Wisconsin. Prerequisites: 10-503-151, 10-503-152 and 10-503-157.

10-503-156 Strategies, Tactics & Incident Management 4 credits
Provides an in-depth analysis of the principles of emergency response through utilization of an incident management system. Prepares students to pursue current national ICS training requirements. Prerequisites: 10-503-151, 10-503-152 and 10-503-157.

10-503-157 Fire Investigation 3 credits
Provides learners with the fundamentals and technical knowledge needed for proper fire scene investigation. Prerequisites: 10-503-139, 10-503-143 and 10-503-144.

***3 elective credits are required for the program and can be any three associate degree or college transfer credits of your choice.*

Fire Service Certification
Less-Than-One-Year Diploma

30-503-300 Fire Recruit Academy 5 credits
200 hours of fire fighting training prepares students for the State of Wisconsin Firefighter I and Firefighter 2 certification examinations. Completion of the EMT Basic Course also will provide the student with a diploma in Fire Service Certification. Prerequisite: A COMPASS Reading score of 75 or higher, or an ASSET Reading score of 39 or higher.

Note: The Fire Recruit Academy is accredited by the International Fire Service Accreditation Congress.

30-531-301 Emergency Medical Technician Basic4 credits
Follows the U.S. Department of Transportation EMT-Basic course curriculum. Patient contact experience is required. This course meets requirements for certification with the National Registry of Emergency Medical Technicians and educational requirements for EMT licensure in Wisconsin. Prerequisites: CPR certification at professional level and a COMPASS Reading score of 68 or higher. Students must be at least 18 years old.

Career Potential:

- **Firefighter**
- **Fire Protection Technician**
- **Fire Protection Systems Installer**
- **Industrial Safety Technician**
- **Property Risk Management Specialist**

With additional education and/or work experience, graduates may find employment as:

- **Fire Protection Consultant**
- **Fire Protection Equipment Sales Manager**
- **Industrial Safety Manager**
- **Municipal Safety Manager**
- **Property Loss/Risk Management Supervisor**
- **Fire Investigator**
- **Fire Marshal**
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- **Fire Officer**

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Rev: 03/10

Fire Protection Technician
Fire Service Certification

Program Number: 10-503-2/30-503-2

Protective Services Program Cluster

Center for Human and Protective Services

Program offered at Madison Campuses

For information call: (608) 246-6911 or (800) 322-6282 Ext. 6911

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