2010-2011

College Catalog

M|State

www.minnesota.edu

Fast Facts

Enrollment:
Total number students served..... 9,154
Full-time students 52%
Part-time students 48%
Percent male 42%
Percent female..... 58%
Percent students of color.....9%

Degrees offered:
Associate in Arts, Associate in Science, Associate in Applied Science, Associate in Fine Arts, certificates and diplomas

Largest programs:
Nursing, business, Associate of Arts transfer, radiologic technology, construction electricity

Unique programs:
Biofuels technology, electrical line worker, equine science, industrial mechanical maintenance, nanoscience technology, power sports technology, sustainable food production, wine studies

Intercollegiate sports:
Womens volleyball, golf, basketball and softball; mens football, basketball, golf and baseball; member of Minnesota College Athletic Conference and the National Junior College Athletic Association

Student activities:
Music, art and drama, student government, student and professional organizations, honor societies

Housing:
As a multi-campus college, housing options vary by community. In Detroit Lakes there are ample off-campus housing options, many within walking distance of the campus. Fergus Falls has on-campus apartment-style living with a variety of amenities and meal plan options, as well as off-campus housing options in the community. The Moorhead campus has an agreement with Minnesota State University Moorhead for residence hall living options, and there are also ample off-campus apartments within walking distance of the campus. In Wadena, off-campus housing options are available, many in close proximity to the campus.

Highlights:
One college. Four Campuses. Online. That's not just a catchy phrase but a way of life at M State, which offers more than 120 career and liberal arts programs at locations in the heart of Minnesota lakes country and the Fargo-Moorhead metropolitan area.

- Locations in Detroit Lakes, Fergus Falls, Moorhead, Wadena.
- Enjoy a rich college experience through student life activities focused on both on-campus and commuter students.
- The college offers the Associate in Arts degree on all campuses and online. The Fergus Falls campus offers the Associate in Fine Arts degree in visual art or music. These degree options provide easy transfer toward a degree at a four-year institution.
- The college ranks among the top three fundraising two-year colleges in Minnesota, providing more than $170,000 in scholarships in the 2009-2010 academic year.
- All campuses provide career programs in health care services, trade and technology areas.
- All students have access to assistance through advising, counseling, tutoring, transfer assistance, career placement and more.
- The college offers 23 online majors and hundreds of online courses leading to degrees, diplomas and certificates.
- Get your questions answered during a live chat from 10 a.m.-7 p.m. or tour campus Mondays, Wednesdays, Fridays at 10 a.m. and 2 p.m.

Welcome

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Discover your future at
www.minnesota.edu

M | State

One College.
Four Campuses.
Online.

Minnesota State Community and Technical College is committed to a policy of nondiscrimination in employment and education opportunity. No person shall be discriminated against in the terms and conditions of employment, personnel practices, or access to and participation in programs, services, and activities with regard to race, sex, color, creed, religion, age, national origin, disability, marital status, status with regard to public assistance, sexual orientation, or membership or activity in a local commission as defined by law. Inquiries regarding compliance, rights and other information may be addressed to the Affirmative Action Officer, Doug Andring, 1900 28th Avenue South, Moorhead, MN 56560, Office B152, 218-299-6870, fax: 218-299-6513. Inquiries regarding the education opportunities or equal employment policies of the Affirmative Action program should be directed to the:

Minnesota State
Community and Technical College
Compliance Officer
Doug Andring
1900 28th Avenue South
Office B152
Moorhead, MN 56560
Telephone: 218-299-6870
Fax: 218-299-6513

Office of Civil Rights
U.S. Department of Education
111 N. Canal Street, Suite 1053
Chicago, IL 60606-7204
Telephone: 312-886-8434
FAX: 312-353-4888;
TDD: 312-353-2540
E-mail: OCR_Chicago@ed.gov

U.S. Department of Education
Office for Civil Rights
Customer Service Team
Mary E. Switzer Building
330 C Street, SW
Washington, DC 20202
Telephone: 1-800-421-3481
FAX: 202-205-9862;
TDD: 877-521-2172
E-mail: OCR@ed.gov

Printed copies of the campus drug-free policy, security policy, athletic gender equity policy, and student right to know are available by contacting: Student Services Office; Minnesota State Community and Technical College; 1414 College Way; Fergus Falls, MN 56537-1000; (218) 736-1500.

Minnesota State Community and Technical College is accredited by the Higher Learning Commission; Member of the North Central Association (NCA), with additional program-specific accreditation information found in the M State catalog. Information about NCA can be found on their Web site at: http://www.ncahigherlearningcommission.org/ or you can write to the association at 30 North LaSalle Street, Suite 2400; Chicago, IL 50502-2504; telephone (312)263-0456.

Information contained in this catalog is periodically updated from time to time without notice. None of the information contained in this catalog should be regarded as contractual in nature. Data contained in this catalog is thought to accurately reflect information available at the time of publication (October 2010). However, Minnesota State Community and Technical College reserves the right to make substantial changes in curricula, course content and goals, procedures, policies, program requirements and tuition rates / costs at any time deemed necessary between editions. All revisions will take priority over the contents of this edition.

If you use a TTY, you can call us using the Minnesota Relay Service at (651) 297-5353 or 1-800-627-3529 and ask them to place a call to Minnesota State Community and Technical College. Upon request this information will be made available in alternate formats.

A member of the Minnesota State Colleges and Universities System.
An Equal Opportunity Educator/Employer
Un Educador/Empleador de Oportunidad Igual

Catalog Disclaimer

The purpose of the catalog is to provide students, advisors, counselors, faculty and college administration a convenient vehicle for viewing information about M State's programs and courses. While M State is committed to communicating in a timely and accurate manner, it is important for all catalog users to understand that this publication is not intended to create any guarantees about current program/course offerings. M State reserves the right to change or vary the content of this publication, without notice to current or potential users, when in its sole discretion such changes, updates or variations are warranted. It is the user's responsibility to seek clarification and/or assistance from a college advisor or administrator regarding any content questions. The most current publication of M State's Online Catalog supersedes all prior print or online publications and can be found by visiting our Web site at www.minnesota.edu.

Welcome to

Minnesota State
Community and Technical College

Discover your future.

What kind of M State student do you want to be? A student in a career program headed for employment in two years or less? One who is pursuing a bachelor's degree, or beyond, but getting a start in a personal and affordable setting? Someone who is advancing his/her education when it's convenient through online education? Or are you a lifelong learner looking for customized training to fit your business? As a fully accredited institution, Minnesota State Community and Technical College is prepared to help you discover your future.

Through its four campuses in Detroit Lakes, Fergus Falls, Moorhead and Wadena, M State offers all that our region could ask of a two-year community and technical college: transfer and liberal arts programs, vocational and technical education, customized training for business and industry, continuing education opportunities for lifelong learners, athletic and cultural opportunities and strong student support services.

In addition to the four traditional campuses, we also have our eCampus, which offers more than 22 majors online and 150 courses so students can advance their education when it works for them.

Each campus has a unique and proud history of providing programs and personal services to meet student needs for more than 40 years. The college staff offers outstanding support services, and the faculty provides excellent teaching. Our focus is on meeting the individual needs of each of our students.

M State students are involved in all aspects of college life. Our communities demonstrate their support for M State and its students by supporting our foundations and by participating in the college's cultural, athletic and continuing education program and events.

M State alumni have distinguished themselves in their fields both regionally and nationally. Graduates of our professional programs are working in high-demand careers, and graduates of our transfer programs are finding success in higher education and in life beyond college.

Welcome to Minnesota State Community and Technical College. If you need additional information, please contact us at 1-888-696-7282.

Mission

M State will be a regionally recognized organization focused on and partnering for innovation, learning and your future.

Vision

To provide accessible education with vigor and integrity to diverse learners, preparing them for dynamic learning, living, working and serving.

Detroit Lakes

900 Highway 34 East
Detroit Lakes, MN 56501-2698
218.846.3700 • 1.800.492.4836 • Fax: 218.846.3794

About the Campus

The Detroit Lakes campus, with a total enrollment of 1,700, offers unique programs including PowerSports Technology and Marine Engine Technology – both fitting for a campus in the heart of Minnesota lake country. Additional programs prepare students to meet growing market demand in the areas of radiologic technology, computer network security and Web development. Students also can choose career and technical programs in the automotive, business, childcare, drafting and healthcare professions. The campus offers food service, child care, a variety of student organizations, a veterans resource center and the Business & Entrepreneurial Services Center. With small class sizes, the faculty-to-student ratio allows for one-on-one attention, while exceptional student support services are available to promote academic success.

About the Community

The beautiful Detroit Lakes area has 412 lakes within a 25-mile radius and offers some of Minnesota's premiere outdoor recreation opportunities. Summer is the busy time in lake country with fishing, boating, water sports and events that draw visitors from around the nation. Thousands descend upon the spectacular mile-long beach for the 4th of July to enjoy the water, fun and free fireworks show. Each August, Detroit Lakes draws music fans from around the country to WE Fest, the world's largest outdoor country music festival. Detroit Lakes isn't only about the summer, though. There is an array of activities during the rest of the year, including ice fishing, snowmobiling and hunting, plus the community celebrates its vibrant downtown commercial district and is just a short drive from the Fargo-Moorhead metropolitan area. The city's population is approximately 8,600 in the off-season and 30,000 in the summer, and it is home to 14 challenging golf courses, go-carts and batting cages, cross-country skiing and downhill skiing.

Fergus Falls

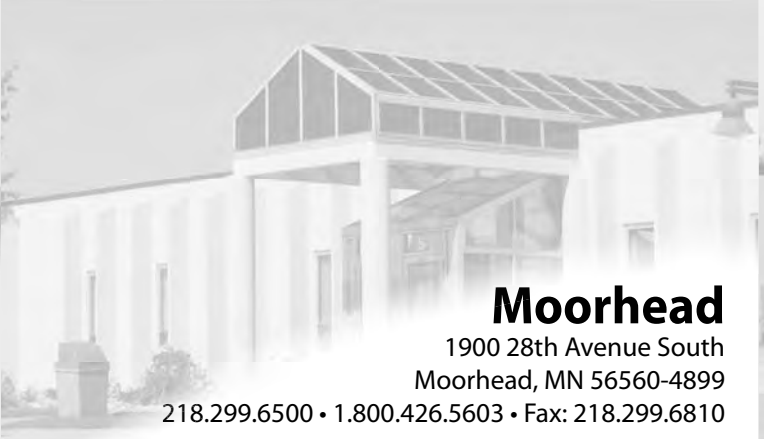
1414 College Way
Fergus Falls, MN 56537-1000
218.736.1500 • 1.877.450.3322 • Fax: 218.736.1510

About the Campus

The Fergus Falls campus, with a total enrollment of 3,200, has been providing high-quality academic programs in the liberal arts and health sciences for 50 years. Degree options include Associate of Arts, Associate of Fine Arts in Music and in Visual Arts, Associate of Science in Biological Sciences, Medical Laboratory Technology, Engineering, Environmental Science, Accounting and Business, Associate Diploma in Nursing and Certificates in Equine Science and Sustainable Food Production. The college is recognized for its rich tradition in arts, music and athletics, where it competes in the National Junior College Athletic Association and the Minnesota College Athletic Conference in eight sports: football, volleyball, mens and womens golf, mens and womens basketball, baseball and softball. Visitors are amazed by the extensive art collection displayed across the campus, making it an everyday part of the student experience. The music program is renowned for both vocal and instrumental excellence, and student musicians enjoy new chorale and instrumental rehearsal rooms, along with computers and software for music composition. The campus offers food service, two options for on-campus living and many scholarship opportunities through Fergus Area College Foundation, which has an endowment of nearly $3 million.

About the Community

Fergus Falls is located in west central Minnesota, less than three hours from Minneapolis-St. Paul and an hour from the Fargo-Moorhead metropolitan area. The city of 14,000 is home to an active arts community and has a wide array of outdoor recreational opportunities, including the trailhead of the 55-mile Central Lakes Trail for bikers and snowmobilers. With more than 1,000 lakes in Otter Tail County, there is no shortage of outdoor and water activities. A Center for the Arts and the Kaddatz Galleries, both located in downtown Fergus Falls, are venues for theater, concerts, independent films and rotating art exhibits. Otter Tail Power Company has its headquarters in Fergus Falls, and the city is a regionally-recognized health care provider through Lake Region Healthcare and its Athletic Republic sports training center and new Cancer Care and Research Center.



Moorhead

1900 28th Avenue South
Moorhead, MN 56560-4899
218.299.6500 • 1.800.426.5603 • Fax: 218.299.6810

About the Campus

The Moorhead campus, with a total enrollment of 4,450, is truly a comprehensive community college, offering both technical/career programs and general education classes. The many choices enable students to pursue their career goals in programs that range from six months to two years. Students also have the option of completing an Associate of Arts degree with the intent of continuing on to earn a bachelor's degree or beyond at a four-year college or university. Innovative new programs allow students to prepare for careers in the exciting and expanding fields of nanotechnology, biotechnology and engineering. Campus highlights include food service which features homemade meals made by students in the culinary program, student support services, intramural sports, student life opportunities with nearly 20 student organizations, and campus housing at nearby Minnesota State University Moorhead.

About the Community

Fargo-Moorhead, with a population of 150,000, has a growing reputation as a vibrant college town, with students from M State, Minnesota State University Moorhead, Concordia College and North Dakota State University. Moorhead is small enough to feel comfortable, yet it offers all the benefits of a larger metropolitan area with its cultural, recreational and commercial diversity. Arts and culture flourish in Fargo-Moorhead, where local talent supports a community theater, symphony and civic opera company. The cities boast numerous parks, bike trails, ice facilities, playgrounds, swimming pools, ball diamonds, cross country ski trails and golf courses. The business community is thriving, too, as a center for agri-business, marketing, technology and research in the heart of the Red River Valley.

Wadena

405 SW Colfax Avenue
Wadena, MN 56482-1447
218.631.7800 • 1.800.247.2007 • Fax: 218.631.7904

About the Campus

The Wadena campus, with a total enrollment of 1,000, offers degrees in a range of fields, including business, healthcare, cosmetology, industrial mechanical maintenance and construction. Small class sizes mean a more personal education, and most programs offer the kind of hands-on classroom and real-life experiences that are ideal for preparing students for careers. Strong interest in its highly regarded Electrical Line Worker program recently prompted the college to open a satellite campus for the program in Baudette, on the Canadian border. Students also can earn an Associate of Arts degree, a springboard for continuing education at a four-year college or university. The campus provides food service, student organizations, and support services to promote academic success. Housing options are available near the campus.

About the Community

The welcoming community of Wadena, with a population of 4,500, is located at the gateway of Minnesota lake country. It offers many opportunities for outdoor recreation with 1,000 lakes within 50 miles and more than 300 acres of parks that provide opportunities for cross-country skiing, snowmobiling, canoeing, biking, hunting, golfing, in-line skating, horseback riding and fishing. The city serves as a regional trade center for area communities and has a small-town atmosphere with the attractions of a larger community.

eCampus:

1.888.696.7282 • ecampus@minnesota.edu

About the Campus

With a enrollment of 4,400, M State's eCampus provides both an affordable and flexible way to advance your education. Whether you are taking classes or earning your degree, eCampus offers more than 150 classes and 22 programs and majors online so you can discover your future without ever setting foot on a campus. Classes are taught by full-time faculty members. There is easy online access to your instructors and advisors, as well as other resources like an electronic library and tutoring that will help you along the way. M State is fully accredited, courses are highly transferable and there is no requirement for continuous enrollment.

Custom Training & Workforce Development

About CTS

For more than 20 years, M State's Custom Training and Workforce Development division has partnered with business clients to access their organizational needs and develop custom products and services.

Service Area

CTS primarily serves 15 counties in west central Minnesota and bordering counties in east central North Dakota, an area of more than 20,000 square miles and 250,000 people. CTS also provides associate degree programs to workers on-site or online to companies headquartered in Minnesota.

Flexible Hour-Based & Credit Bearing Options

CTS offers both hour-based and credit courses. Hour-based training usually focuses on a specific training or production need within a company. To develop the internal workforce for new responsibilities and advancement, companies often use credit courses and degree programs. Credit courses are considered to be a key workforce recruitment and retention tool.

Research and Development

Although our primary focus is the incumbent workforce, CTS also serves as the research and development arm of the college. Because CTS staff members are in daily contact with businesses and economic developers, they are in a position to continuously feed information back to the college. CTS develops new programs for businesses that can be offered on the campuses, secures new equipment through grants and serves as an industry connection to the campuses.

Targeted Products and Services

- Allied Health & Fire and Emergency Services
- Applied Technology & Manufacturing
- Information Systems & Technology
- Leadership Development
- Sales and Management

Training products can be customized to fit a particular business need or, in some cases, new products can be developed to meet a new technology or strategic focus. Products and services offered through each area of expertise include:

Allied Health & Emergency Services

- Continuing Education for Nursing
- CPR and First Aid
- Dentistry & Allied Health
- Fire Training
- First Responder (Initial & Refresher)
- Lean Health System Analysis and Implementation
- Medication Assistant (N. D. & Minn. approved)
- Nursing Assistant Training & Competency Examination
- RN & LPN Refresher Courses

Applied Technology & Manufacturing

- APICS
- Automation/Robotics
- Carpentry
- CNC Machining
- Computer Aided Drafting
- Drive & Power Systems for Maintenance Technicians
- Electrical and Mechanical Troubleshooting
- Electrical Training Series
- Forklift Operation
- High-Low Pressure Boiler Systems
- IT Pro Series
- Low Pressure Boiler Systems
- Manufacturing Employee Series
- Manufacturing Flow
- Manufacturing Procurement
- MN Commercial Vehicle Inspection
- NEC Electrical Code Update & Refresher
- Power Limited CE
- Print Reading & Schematics Interpretation
- Programmable Logic Controllers
- Quality Systems-Lean
- Related Safety Training
- Statistics
- Welding

Information Technology
- Assessment and Consulting
- Customized Hardware/Software Computer Training
- Microsoft Applications
- Networks
- Web Design and Marketing

Leadership Development
- Achieve Global
- Business Writing
- Customer Service
  - *Customer Service 101*
  - *Customer Service Academy*
  - *Leading and Managing Effective Customer Service*
- Employee and Management Coaching
- Performance Appraisal Systems
- Quality Systems Analysis and Implementation
- Strategic Planning
- Supervisory Skills that Build Productive Employees
- Train the Trainer Program Development

Sales and Management
- Customized Sales Applications
- Field Sales
- Phone Selling
- Sales Management Training

High Quality Trainers, Instructors and Consultants
CTS uses a network of dozens of full-time, adjunct and contract instructors and consultants. Business and industry experience is considered essential, and instructors have varied practical and instructional experiences.

Convenient On-Site and Campus Delivery
CTS provides training and services primarily on each company's site. In some cases staff will work with companies to set up training classrooms and labs. If a business is located near a campus, training can be held there.

Partnerships
CTS believes that the best way to serve its customers is to develop working partnerships with industry councils, higher education institutions and economic development organizations. Project partnerships have been formed with a large number of economic development groups, as well as regional higher-education institutions.

CONTACT CUSTOM TRAINING SERVICES

Mary Ryan, Director of Client Services
Custom Training Services
405 SW Colfax
Wadena, MN 56482
218.291.4266 (Fax)
218.849.2655 (Cell)
mary.ryan@minnesota.edu

GL Tucker, Director of Manufacturing and Technology
Custom Training Services
900 Hwy 34 East
Detroit Lakes, MN 56501
218.846.3765 (office)
218.846.3706 (fax)
GL.tucker@minnesota.edu

Karen Schumacher, Director of Health
Leadership and Emergency Services
1900 S 28th Ave
Moorhead, MN 56560
218.477.4455 (office)
218.291.4266 (fax)
218.556.5297 (cell)
karen.schumacher@minnesota.edu

Accreditation

M State is accredited by
The Higher Learning Commission:
Member of the North Central Association
30 North LaSalle Street, Suite 2400
Chicago, IL 50502-2504
Web site: http://www.ncahigherlearningcommission.org
Phone: 312.263.0456

Individual M State programs are additionally accredited:

Automotive Service Technology
(Moorhead, Detroit Lakes)
NATEF Certified
National Automotive Technicians Ed Foundation
101 Blue Seal Drive, Suite 101
Leesburg, VA 20175
Phone: 703.669.6650
Fax: 703.669.6125
http://natef.org

Construction Electricity
(Moorhead, Wadena)
Approved as one year of credit toward students' journeyman's license by the:
Minnesota State Board of Electricity
1821 University Avenue, Suite S-128
St. Paul, MN 55104-2993
Phone: 651.642.0800
Fax: .651.642.0441

Cosmetology
(Wadena)
Approved by the Minnesota State Board of Cosmetology

Criminal Justice
(Moorhead)
Minnesota Board of Peace Officer Standards & Training
1600 University Avenue, Suite 200
Saint Paul, MN 55104
Phone: 651.643.3060
Fax: 651.643.3072

Dental Hygiene
(Moorhead)
Commission on Dental Accreditation of ADA
211 East Chicago Avenue
Chicago, IL 60611-2678
Phone: 312.440.2500
Fax: 312.440.2915

Health Information Technology
(Moorhead)
Commission on Accreditation of Allied Health Education Programs
35 East Wacker Drive, Suite 1970
Chicago, IL 60601-2208
Phone: 312.553.9355
Fax: 312.553.9616

in cooperation with the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM)
Accreditation Services
c/o AHIMA
233 N. Michigan Ave, Suite 2150
Chicago, IL 60601-5800
Phone: 312.233.1130
Fax: 312.233.1430

Medical Lab Technician
(Fergus Falls)
National Accrediting Agency for Clinical Laboratory Science
8410 W. Bryn Mawr Avenue, Suite 670
Chicago, IL 60631
Phone: 773.714.8880
Fax: 773.714.8886

Nursing (AS)
(Detroit Lakes, Fergus Falls, Moorhead, Wadena)
MN Board of Nursing
2829 University Ave. Southeast, #200
Minneapolis, MN 55414-3253
www.nursingboard.state.mn.us
Phone: 612.617.2270
Toll Free: 888.234.2690 (MN, IA, ND, SD, WI)
Fax: 612.617.2190

Pharmacy Technology
(Distance)
American Society of Heath Systems Pharmacists
7272 Wisconsin Avenue
Bethesda, MD 20814
Phone: 301.657.3000
Fax: 301.657.1258

Radiologic Technology Program
(Detroit Lakes and Distance)
Joint Review Committee on Education in Radiologic Technology
20 N. Wacker Drive Suite 2850
Chicago, IL 60606-3180
Phone: 312.704.5300
Fax: 312.704.5304
Web site: www.jrcert.org

Plumbing - 32-credit program approved as 800 hours toward student's apprenticeship care in Minnesota and 1600-2000 hours in North Dakota:

Minnesota Department of Labor & Industry Construction Codes & Licensing Division, Licensing Unit
443 Lafayette Road N. St. Paul, MN 55155-4342
Phone: 651.284.5067
Fax: 651.284.5748
www.doli.state.mn.us

Practical Nursing (Diploma/AAS)
(Detroit Lakes, Fergus Falls, Moorhead, Wadena)
Minnesota Board of Nursing
2829 University Ave. Southeast, #200
Minneapolis, MN 55414-3253
www.nursingboard.state.mn.us
Phone: 888.234.2690 / 612.617.2270
Fax: 612.617.2190

Program Profiles

Program Inventory
Program Profiles

Discover your future at
www.minnesota.edu

Program Title	Degree	Credits	D	F	M	W	O
Accounting	Diploma	64	D		M	W	E
Accounting	AS	64		F			E
Accounting	AAS	72	D		M	W	E
Accounting Clerk	Diploma	33	D		M	W	
Administrative Assistant	AAS	72			M		
Administrative Management Technology	AAS	66	D				
Administrative Support	Diploma	34			M		WE
Administrative Support - Bookkeeping Emphasis	Diploma	49			M		
Administrative Support - Mircocomputer Emphasis	Diploma	49			M		
American Sign Language Studies	Certificate	18			M		
Architectural Technology	AAS	72	D				
Art	AFA	60		F			
Auto Body Collision Technology	Diploma	64	D				
Auto Body Collision Technology	AAS	72	D				
Automotive Service Technology	Diploma	69	D		M		
Automotive Service Technology	AAS	72	D		M		
Billing Compliance Specialist	Certificate	25					E
Bio-fuels Technology	AAS	72			M		
Biotechnology	AAS	70			M		
Biological Sciences	AS	60		F	M		
Business	AS	60		F	M		E
Business Entrepreneurship	AAS	67	D				E
Business Management	AS	60		F			
Business Management/Ownership	Diploma	35	D				
Business: Fashion Marketing and Management	Diploma	70			M		
Business: Fashion Marketing and Management	AAS	70			M		
Business: Sales, Marketing, and Management	AAS	70			M		E
Business: Sales, Marketing, and Management	Diploma	70			M		
Carpentry	Diploma	64			M		
Carpentry	AAS	72			M		
Carpentry - Residential	Diploma	34					WE
Carpentry Assisting	Certificate	30			M		
Carpentry Science	Diploma	33				W	
Child Care and Education - Level II	Certificate	25	D				CC
Cisco Networking	Certificate	12	D			W	E CC
Civil Engineering Technology	AAS	72	D				
Computer & Network Technology	Diploma	33				W	E
Computer & Network Technology	AAS	66				W	E CC
Computer Network Security	AAS	71	D				
Computer Network Security	Certificate	12	D				E
Computer Programming	AAS	70			M		E
Computer Support Essentials	Certificate	15	D				E
Construction Electricity	Diploma	74			M	W	
Construction Electricity	Industrial Maintenance Emphasis - Diploma	72				W	
Construction Management	AAS	72			M		
Correctional Officer	Certificate	28			M		
Cosmetology	Diploma	58				W	
Criminal Justice	AS	64			M		
Culinary Arts	Diploma	64			M		

Program Title	Degree	Credits	D	F	M	W	O
Dental Assisting	AAS	65			M		
Dental Assisting	Diploma	50			M		
Dental Hygiene	AAS	88			M		
Diesel Equipment Technology	(Case IH & New Holland Sponsored) - AAS	79			M		
Diesel Equipment Technology	(John Deere Sponsored) - AAS	79			M		
Diesel Equipment Technology	(Truck Option) - AAS	79			M		
Diesel Equipment Technology	(General) - AAS	79			M		
Diesel Equipment Technology	(General) - Diploma	65			M		
Digital Photography & Imaging	Certificate	18			M		
Early Childhood & Paraprofessional Education	AS	64	D				CC
Electrical Lineworker Technology	AAS	72				W	
Electrical Lineworker Technology	Diploma	36				W	BauEtte
Energy Services Technology	Diploma	36				W	
Energy Services Technology	AAS	68				W	
Engineering	AS	60		F	M		
Environmental Science	AS	60		F			
Equine Science	AAS	60		F			
Equine Science	Diploma	32		F			
Esthetist	Certificate	24				W	
Financial & Credit Services Administration	AAS	66			M		
Fire Department Company Officer	Certificate	22					E
Fire Service Preparation	Certificate	19			M		
Graphic Design Technology	Diploma	30			M		
Graphic Design Technology	AAS	60			M		
Health Information Technology	AAS	64					E
Human Resources	AAS	60			M		E
Human Resources	AS	60			M		E
HVAC - Heating, Ventilation, & Air Conditioning	Diploma	42				W	
Industrial Mechanical Maintenance	AAS	69				W	CC
Industrial Mechanical Maintenance	Certificate	21				W	CC
Industrial Mechanical Maintenance	Diploma	39				W	CC
Information Technology	AS	60			M		
Information Technology	Diploma	60			M		
IT Systems Support	AAS	68	D				E
IT Systems Support	Diploma	34	D				
Landscape and Garden Center Technician	Diploma	34			M		
Liberal Arts & Sciences	AA	64	D	F	M	W	E
Manicurist	Certificate	17				W	
Manufacturing Engineering Technology	AAS	70					CC
Manufacturing Technician	Certificate	19					CC
Manufacturing Technology	Diploma	37					CC
Marine Engine Technology	Certificate	30	D				
Marine Engine Technology	Diploma	64	D				
Marine Engine Technology	AAS	69	D				
Marketing	AAS	68	D				
Massage Therapy	Diploma	32				W	
Mechanical Drafting & Design	AAS	72			M		
Mechanical Drafting & Design	Diploma	60			M		
Medical Administrative Assistant	AAS	68			M	W	E

Program Title	Degree	Credits	D	F	M	W	O
Medical Coding & Insurance	Diploma	36			M	W	E
Medical Laboratory Technician	AS	64		F			
Medical Office Assistant	Diploma	35			M	W	E
Medical Receptionist	Certificate	27			M	W	E
Medical Transcription	Certificate	29			M	W	E
Music	AFA	64		F			
Nanoscience Technology	AAS	72			M		
Nursing	(Mobility Option) - Associate Degree (RN)	32	D	F	M	W	E
Nursing	(Generic Option) - Associate Degree (RN)	64	D	F		W	
Paralegal	AAS	66	D				E
Pharmacy Technology	Diploma	36					E
Pharmacy Technology	AAS	60					E
Phlebotomy Technician	Certificate	10		F			
Plumbing Technology	Diploma	36			M	W	
Plumbing Technology	AAS	64			M	W	
PowerSports Technology	Diploma	64	D				
Practical Nursing	Diploma	47	D	F		W	
Practical Nursing	AAS	63	D	F	M	W	
Project Design Technician	Certificate	15					CC
Radiologic Technology	AAS	89	D				E
Refrigeration and Air Conditioning	Diploma	70			M		
Sales and Marketing	Diploma	32	D				
Supervision and Leadership	AS	64					CC
Supervisory Leadership	AAS	60			M		CC
Supervisory Leadership	Certificate	30			M		CC
Supervisory Leadership Essentials	Certificate	18					CC
Sustainable Food Production	Deploma	30		F			
Technological Studies I	Certificate	14					CC
Technological Studies II	Certificate	11					CC
Utilities System Installation	Diploma	30				W	
Web Development	Diploma	65	D				E
Web Development	Certificate	30	D				E
Web Development	AAS	68	D				E
Welding	Certificate	15					CC
Wine Studies	Certificate	9			M		

All campuses listed may not offer all of the degrees listed for a specific program, please check www.minnesota.edu for programs you are interetsed in attending to find out what degrees are offered.

Degrees:

Associate in Arts (AA) degree is designed for the transfer to a four-year institution. The AA degree requires students to complete the Minnesota Transfer Curriculum. Majors listed are among the most popular; ask a college admissions counselor for details about your choice of major.

Associate in Science (AS) degree is awarded for the successful completion of a program which transfers to a baccalaureate major in a scientific or technical field. Program includes a minimum of 30 general education courses.

Associate in Applied Science (AAS) degree is a combination of technical credits and a minimum of 20 general education credits. Minnesota State Community and Technical College has articulation agreements with some four-year institutions that allow transfer of a wide range of credits.

Associate in Fine Arts (AFA) degree is designed to provide a means for music students to pursue a path with seamless transition to a four-year music degree and to be best prepared for a degree and/or career in music.

Diploma is the vocational degree awarded upon completion of a technical program. Studies include technical credits only, with 6-12 general studies credits related to your technical education.

Certificate is awarded upon completion of a program requiring 30 or fewer credits and requires a minimum of 3 general education credits.

Detroit Lakes (D)

Fergus Falls (F)

Moorhead (M)

Wadena (W)

Corporate Credit (CC)

White Earth (WE)

eCampus (E)

Associate in Arts (AA) Degree:

(Effective Fall 2009)

REQUIREMENTS

The Associate in Arts Degree can be used to fulfill freshman-sophomore general education requirements in all the state universities in Minnesota and at several colleges within the University of Minnesota. The degree is the basic graduation award toward which most students will work if they intend to transfer. It emphasizes a broad general education. In order to obtain an AA degree, students must complete the following uniform requirements.

1. Successful completion of a minimum of 64 semester credits numbered 1000 or above.
2. Achieve an overall GPA of 2.00.
3. Earn at least 20 of the 64 credits at M State. (This number is reduced from 20 to 12 for students transferring within Minnesota State College and University System).
4. Complete a minimum of 40 credits of liberal education.

Students may satisfy the liberal education requirement with a variety of courses and credits. Some courses will serve more than one of the ten (10) required areas of emphasis. Fulfilling the minimum required credits of courses in each area of emphasis will not satisfy the 40 credit liberal education minimum. Some additional credits beyond the minimum requirements in Areas 1-10 are required to achieve the overall 40 credit liberal education component. Students should carefully review and tally their progress.

In order to be certified as having met all the requirements of the College's Transfer Curriculum, a student must successfully complete courses as prescribed in the following liberal education distribution areas:

AREA 1: Written and Oral Communication

9 Credit Minimum

ENGL	1101	College Writing 1
		and
ENGL	1102	College Writing II
		plus one of the following speech courses
ENGL	1220	Professional & Technical Writing (2)
SPCH	1112	Small group Communication
SPCH	1114	Public Speaking
SPCH	1150	Interpersonal Communication

AREA 2: Critical Thinking

Students must complete 2 courses from any two of the following discipline areas

BIOL	1104	Biology of Human Concerns (3)
BIOL	*1107	Environmental Science Issues Lecture (3 no lab and 10)
BIOL	1108	Environmental Science Issues Lab (3, 10)
BIOL	1112	General Biology II
BIOL	*2202	Principles of Nutrition (3 no lab)
BIOL	2245	Molecular & Field Ecology (3)
CHEM	1100	Fundamental Concepts of Chemistry (3)
CHEM	1101	Principles of General Chemistry (3)
CHEM	1111	General Inorganic Chemistry I (3)
CHEM	1112	General Inorganic Chemistry II (3)
CHEM	2224	Organic Chemistry I (3)
CHEM	2225	Organic Chemistry II (3)
ECON	1150	Essentials of Economics (5)
ENGL	1201	Technical Writing
ENGL	1220	Professional and Technical Writing (1)
ENGL	2230	Environmental Literature (6, 10)
ENGL	2231	Intro to Lit: Poetry (6, 7)
ENGL	2234	Intro to Lit: Short Stories (6, 7)
ENGL	2235	Intro to Lit: Drama (6, 8)
ENGL	2236	Intro to Lit: The Novel (6, 7)
ENGL	2237	Intro to Lit: Short Prose (6, 9)
ENGL	2239	Nature Writers (6, 10)
ENGL	2304	Introduction to Literature, Native American Focus (6)
ENGL	2320	Special Topics (6)
ENGL	2322	Banned Literature (6, 7)
ENGL	2323	Horror and Supernatural Fiction (6)
ENGL	2330	Individual Authors: (Authors Vary) (6)
HUM	1101	Intro to Humanities (6)
HUM	1110	Native American Culture (6, 7)
HUM	2210	The Study of Film (6)
HUM	2236	Technology in the Humanities (6, 8)
MATH	1100	World of Mathematics (4)
MATH	1102	Finite Math (4)
MATH	1114	College Algebra (4)
MATH	1115	Functions/Trigonometry (4)
MATH	1122	Applied Calculus/Linear Algebra (4)
MATH	1134	Analytic Geometry and Calculus I (4)
MATH	1135	Analytic Geometry and Calculus II (4)
MATH	1207	Concepts of Applied Statistics (4)
MATH	1213	Introduction to Statistics (4)
MATH	2200	Principles of Arithmetic (4)
MATH	2231	Analytic Geometry and Calculus III (4)
MATH	2257	Linear Algebra (4)
MATH	2259	Differential Equations (4)
MUSC	1121	Basic Theory and Musicianship I (6)
MUSC	1122	Basic Theory and Musicianship Ii (6)
MUSC	2231	Advanced Theory and Musicianship III (6)
MUSC	2232	Advanced Theory and Musicianship IV (6)
MUSC	2281	Private Instrumental Lessons (6)
PHIL	1130	Critical Thinking
PHIL	1201	Ethics (6, 9)
PHIL	1211	Intro to Philosophy (6)
PHIL	2224	Philosophy of Religion (6)
PHIL	2230	Existentialism (6)
PHYS	1101	Physics and the Environment (3, 10)
PSCI	2220	Intro to Constitutional Theory (5,9)
PSYC	1101	Human Interaction (5)
PSYC	1107	Environmental Psychology (5, 10)
PSYC	2226	Behavior and Environmental Management (5, 10)
SOC	1111	Intro to Sociology (5, 7)
SOC	2118	Sociology of Aging (5, 7)
SOC	2215	Criminology (5)
SPCH	1112	Small Group Communication (1)

AREA 3: Natural Sciences

Complete a minimum of 6 credits from the following list. At least one course must include a lab
*(* denotes non-lab courses).*

BIOL	1104	Biology of Human Concerns (2)
BIOL	*1107	Environmental Science Issues Lecture NO LAB (2, 10)
BIOL	1108	Environmental Science Issues Lab (2, 10)
BIOL	1111	General Biology I (Cell)
BIOL	1112	General Biology II
BIOL	1115	Introduction to Biotechnology
BIOL	1152	Food Science No Lab (9)
BIOL	1161	Intro to Freshwater Biology (10)
BIOL	2010	General Ecology (10)
BIOL	*2202	Principles of Nutrition NO LAB (2)
BIOL	2220	General Microbiology
BIOL	2230	Anatomy and Physiology I
BIOL	2232	Anatomy and Physiology II
BIOL	2240	Genetics
BIOL	2245	Molecular & Field Ecology (2)
BIOL	2257	Medical Microbiology
BIOL	2266	Diagnostic Microbiology
CHEM	1100	Fundamental Concepts of Chemistry (2)
CHEM	1101	Principles of General Chemistry (2)
CHEM	1111	General Inorganic Chemistry I (2)
CHEM	1112	General Inorganic Chemistry II (2)
CHEM	2224	Organic Chemistry I (2)
CHEM	2225	Organic Chemistry II (2)
GLST	1510	Global Studies: Natural Science (8)
PHYS	1101	Physics and the Environment (2, 10)
PHYS	*1105	Topics in Physics
PHYS	1106	Fundamentals of Physics – Mechanics
PHYS	1120	Introduction to Astronomy
PHYS	1401	College Physics I
PHYS	1402	College Physics II
PHYS	1411	University Physics I
PHYS	1412	University Physics II

AREA 4: Mathematics and Logical Reasoning

Complete a minimum of 3 credits

MATH	1100	World of Mathematics (2)
MATH	1102	Finite Math (2)
MATH	1114	College Algebra (2)
MATH	1115	Functions/Trigonometry (2)
MATH	1122	Applied Calculus/Linear Algebra (2)
MATH	1134	Analytic Geometry and Calculus I (2)
MATH	1135	Analytic Geometry and Calculus II (2)
MATH	1207	Concepts of Applied Statistics (2)
MATH	1213	Introduction to Statistics (2)
MATH	2200	Principles of Arithmetic (2)
MATH	2231	Analytic Geometry and Calculus III (2)
MATH	2257	Linear Algebra (2)
MATH	2259	Differential Equations (2)

AREA 5: History and the Social and Behavioral Sciences

Complete a minimum of 9 credits selected from two different discipline areas.

ANTH	1100	Intro to Anthropology (8)
ECON	1150	Essentials of Economics (5)
ECON	2210	Macroeconomics
ECON	2222	Microeconomics (9)
GEOG	1110	World Geography (8)
HIST	1110	Western Civilization Ancient-1400 (8)
HIST	1111	Western Civilization 1400's-1600's (8)
HIST	1112	Western Civilization 1600's-1800's (8)
HIST	1113	Europe: 1900's-1939 (8)
HIST	1500	Europe Experience (8)

HIST	2211	American History: Colonial Period (7)
HIST	2212	American History: 19th Century (7)
HIST	2213	American History: 20th Century (7)
HONS	1100	Introduction to Honors
PSCI	1120	American National Government (9)
PSCI	1130	State and Local Government (9)
PSCI	1150	Current Politics (2, 8)
PSCI	2204	Comparative Government (8)
PSCI	2206	International Politics (8)
PSCI	2210	Judicial Politics (9)
PSCI	2220	Intro to Constitutional Theory (2, 9)
PSYC	1101	Human Interaction (2)
PSYC	1107	Environmental Psychology (2, 10)
PSYC	1200	General Psychology (9)
PSYC	2220	Abnormal Psychology
PSYC	2222	Development Psychology (9)
PSYC	2224	Social Psychology (7)
PSYC	2226	Behavior and Environmental Management (2, 10)
SOC	1111	Intro to Sociology (2, 7)
SOC	1113	Social Problems (9)
SOC	1114	Social Problems Field Experience
SOC	2118	Sociology of Aging (5, 7)
SOC	2211	Marriage and Family
SOC	2213	Sociology of the Family
SOC	2215	Criminology (2)
SOC	2216	Minority Group Relations (7)
SOC	2217	Rural Sociology (7)
SOC	2220	Food, Culture and Society (7)
WMST	1130	Intro to Women's Studies (7)

AREA 6: The Humanities and Fine Arts

Complete a minimum of 9 credits selected from the 3 different discipline areas. (A maximum of 3 Fine Arts credits may be utilized)

ART	1121	World of Art I Prehistory through Middle Ages (8)
ART	1122	World of Art II (8)
ART	1124	American Art (7)
ENGL	2200	Introduction to Creative Writing
ENGL	2223	Creative Writing: Personal Narrative
ENGL	2228	A Well Examined Life:Reading &Writing Memoir (7)
ENGL	2230	Environmental Literature (2, 10)
ENGL	2231	Intro to Lit: Poetry (2, 7)
ENGL	2234	Intro to Lit: Short Stories (2, 7)
ENGL	2235	Intro to Lit: Drama (2, 8)
ENGL	2236	Intro to Lit: The Novel (2, 7)
ENGL	2237	Intro to Lit: Short Prose (2, 9)
ENGL	2239	Nature Writers (2, 10)
ENGL	2302	American Ethic Literature (7)
ENGL	2304	Introduction to Literature, Native American Focus (6)
ENGL	2310	Intro to Mythology
ENGL	2314	Intro to Shakespeare
ENGL	2320	Special Topics (2)
ENGL	2321	Women in Literature (7)
ENGL	2322	Banned Literature (7)
ENGL	2323	Horror and Supernatural Fiction (2)
ENGL	2330	Individual Authors: (Authors Vary) (2)
ENGL	2331	American Literature I (7)
ENGL	2332	American Literature II (7)
ENGL	2361	British Literature I (8)
ENGL	2362	British Literature II (8)
GLST	1121	Humanities Italy (8)
HUM	1101	Intro to Humanities
HUM	1105	Religion in Humanities (8)
HUM	1110	Native American Culture (2, 7)
HUM	1120	Culture of Italy I (8)
HUM	1132	Women in Humanities (7)
HUM	1134	Global Perspectives for Women (8)
HUM	2210	Introduction to Film (2)
HUM	2230	World Cinema (8)
HUM	2236	Technology in the Humanities (2, 8)
HUM	2281	Culture of the British Isles (8)
HUM	2293	Field Experience: Europe (8)
HUM	2500	Honors Colloquy (7)
MUSC	1111	Fundamentals of Music
MUSC	1115	Exploring Our American Musical Heritage (7)
MUSC	1116	The World of Music
MUSC	1118	Rock and Pop Music
MUSC	1120	Introduction to Music Technology
MUSC	1121	Basic Theory & Musicianship I (2)
MUSC	1122	Basic Theory & Musicianship II (2)
MUSC	2231	Adv Theory & Musicianship III (2)
MUSC	2232	Adv Theory & Musicianship IV (2)
MUSC	2281	Private Instrumental Lessons (2)
MUSC	2285	Advanced Music Composition
PHIL	1201	Ethics (2, 9)
PHIL	1211	Intro to Philosophy (2)
PHIL	2224	Philosophy of Religion (2, 8)
PHIL	2230	Existentialism (2)
SPCH	2218	Oral Interpretation
THTR	1105	Beginning Acting
THTR	1111	Intro to Theatre

The Fine Arts

ART	1105	Inter Cultural Art and Design (7)
ART	1107	Foundations of Art, 2-D
ART	1108	Foundations of Art, 3-D
ART	1110	Intro to Art
ART	1111	Beginning Drawing
ART	1112	Beginning Painting
ART	1113	Drawing II
ART	1116	Pastel Drawing
ART	1140	Handbuilt Ceramics
ART	1141	Ceramics I
ART	2211	Studio Painting and Framing
ART	2241	Ceramics II
ENGL	2221	Creative Writing - Poetry
ENGL	2222	Creative Writing - Fiction
MUSC	1112	Beginning Class Guitar
MUSC	1113	Beginning Class Voice
MUSC	1114	Beginning Class Piano
MUSC	1123	Sight Singing & Ear Training I
MUSC	1124	Sight Singing & Ear Training II
MUSC	1135	Voice Ensemble
MUSC	1141	Concert Choir
MUSC	1145	Area Chorale
MUSC	1151	Individual Voice Lessons
MUSC	1162	Jazz Ensemble
MUSC	1164	Concert Band
MUSC	1168	Pep Band
MUSC	1181	Private Instrumental Lessons
MUSC	1185	Private Music Composition Lessons
MUSC	1191	Individual Piano Lessons
MUSC	2223	Sight Singing & Ear Training III
MUSC	2224	Sight Singing & Ear Training IV
MUSC	2251	Individual Voice Lessons
MUSC	2291	Individual Piano Lessons
THTR	1112	Intro to Stagecraft
THTR	1131	Drama Lab: Acting
THTR	1141	Drama Lab: Stagecraft

AREA 7: Human Diversity

Complete one course

ART	1105	Inter Cultural Art and Design (6F)
ART	1124	American Art History (6)
ENGL	2228	Well Examined Life: Reading & Writing Memoir (6)
ENGL	2231	Intro to Lit: Poetry (2, 6)
ENGL	2234	Intro to Lit: Short Stories (2, 6)
ENGL	2236	Intro to Lit: The Novel (2, 6)
ENGL	2302	American Ethic Literature (6)
ENGL	2321	Women in Literature (6)
ENGL	2322	Banned Literature (6)
ENGL	2331	American Literature I (6)
ENGL	2332	American Literature II (6)
HIST	2211	American History: Colonial Period (5)
HIST	2212	American History: 19th Century (5)
HIST	2213	American History: 20th Century (5)
HUM	1110	Native American Culture (2, 6)
HUM	1132	Women in Humanities (6)
HUM	2500	Honors Colloquy (5)
MUCS	2230	Multicultural America
MUSC	1115	Exploring Our American Musical Heritage (6)
PSYC	2224	Social Psychology (5)
SOC	1111	Intro to Sociology (2, 5)
SOC	2118	Sociology of Aging (2, 5)
SOC	2213	Sociology of the Family (5)
SOC	2216	Minority Group Relations (5)
SOC	2217	Rural Sociology (5)
SOC	2220	Food, Culture and Society (5)
SPCH	2216	Intercultural Communication
WMST	1130	Intro to Women's Studies (5)

AREA 8: Global Perspective

Complete one course

ANTH	1100	Intro to Anthropology (5)
ART	1121	World of Art I Prehistory through Middle Ages (6)
ART	1122	World of Art II (6)
ENGL	2235	Intro to Lit: Drama (2, 6)
ENGL	2361	British Literature I (6)
ENGL	2362	British Literature II (6)
FREN	2211	Intermediate French I
FREN	2212	Intermediate French II
GEOG	1110	World Geography (5)
GLST	1121	Humanities Italy
GLST	1500	Global Studies: International Internship
GLST	1510	Global Studies: Natural Science (3NL)

HIST	1110	Western Civilization Ancient-1400 (5)
HIST	1111	Western Civilization 1400's-1600's (5)
HIST	1112	Western Civilization 1600's-1800's (5)
HIST	1113	Europe: 1900's-1939 (5)
HIST	1500	European Experience (5)
HUM	1105	Religion in Humanities (6)
HUM	1120	Culture of Italy I (6)
HUM	1134	Global Perspectives for Women (6)
HUM	2230	World Cinema (6)
HUM	2236	Technology in the Humanities (2, 6)
HUM	2281	Culture of the British Isles (6)
HUM	2293	Field Experience: Europe (6)
MUSC	1116	The World of Music (6)
PSCI	2204	Comparative Government (5)
PSCI	2206	International Politics (5)
SPAN	2211	Intermediate Spanish
SPAN	2212	Intermediate Spanish II

AREA 9: Ethical and Civic Responsibility

Complete one course

BIOL	1152	Food Science (3NL)
ECON	2222	Microeconomics (5)
ENGL	2237	Intro to Lit: Short Prose (2, 6)
MCOM	1131	Mass Communications
PHIL	1201	Ethics (2, 6)
PHIL	2220	Environmental Ethics (10)
PSCI	1114	Intro to Civil Law (2, 5)
PSCI	1120	American National Government (5)
PSCI	1130	State and Local Government (5)
PSCI	2210	Judicial Politics (5)
PSCI	2220	Intro to Constitutional Theory (2,5)
PSYC	1200	General Psychology (5)
PSYC	2222	Development Psychology (5)
SOC	1113	Social Problems (5)

AREA 10: People and the Environment

Complete one course

BIOL	*1107	Environmental Science Issues Lecture (2, 3 no lab)
BIOL	1108	Environmental Science Issues lab (2, 3)
BIOL	1111	General Biology I (Cell)
BIOL	1161	Intro to Horticulture (3)
BIOL	2010	General Ecology (3)
ENGL	2230	Environmental Literature (2, 6)
ENGL	2239	Nature Writers (2, 6)
PHIL	2220	Environmental Ethics (9)
PHYS	1101	Physics and the Environment (2, 3)
PSYC	1107	Environmental Psychology (2, 5)
PSYC	2226	Behavior and Environmental Management (2, 5)

AA Transfer Worksheet

Use the following worksheet to track the credits taken during the course of your education at M State. Courses listed for the required MNTC Goal Areas are listed on the following pages of this catalog and on the Web site at www.minnesota.edu.

Area 1: Written & Oral Communications (9 credits)

ENGL1101 (3 cr)_____ _____

ENGL1102 (3 cr)_____ _____

Spch 1114 or Spch 1150 (3 cr) _____ _____

Area 2: Critical Thinking (select 2 courses from 2 separate discipline areas)

_____ _____

_____ _____

_____ _____

Area 3: Natural Sciences (6 credits, 1 lab science required)

_____ _____

_____ _____

_____ _____

Area 4: Mathematics/Logic (3 credits)

_____ _____

_____ _____

_____ _____

Area 5: History, Social & Behavioral Science

(9 credits from 2 or more disciplines)

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

Area 6: Humanities/Fine Arts

(9 credits from 3 different discipline areas; a maximum of 3 Fine Arts may be utilized. (*Fine Arts credits denoted as 6F on the schedule)

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

Subtotal _____

A minimum of 40 credits required to this point. *Important: fulfilling the minimum requirements for each are will total 36 credits only. 4 additional credits in Area 1-10 are required

Area 7: Human Diversity (1 course)

_____ _____

Area 8: Global Perspectives (1 course)

_____ _____

Area 9: Ethical & Civic Responsibility (1 course)

_____ _____

Area 10: People & the Environment (1 course)

_____ _____

Elective credits to bring total to 64

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

64 Credits Total _____

Accounting
AAS 72 Credits
Detroit Lakes • Moorhead • Wadena

This major provides the knowledge and skills necessary to examine, analyze, interpret and correct accounting data for the purpose of preparing financial statements, budgets, forecast accounting reports, payroll reports, and individual state and federal income tax returns. Computerized accounting concepts are included in this area of study.

Course #	Course Title	Crds
Required		
ACCT1101	Payroll	3
ACCT1108	Business Math/Calculators	3
ACCT1120	Business Law	3
ACCT1124	Spreadsheet Applications	3
ACCT2201	Financial Accounting I Lab	1
ACCT2202	Financial Accounting II Lab	1
ACCT2203	Managerial Accounting Lab	1
ACCT2211	Financial Accounting I	3
ACCT2212	Financial Accounting II	3
ACCT2213	Managerial Accounting	3
ACCT2215	Computerized Acct App	3
ACCT2216	QuickBooks	3
ACCT2255	Income Tax-Individual	3
ACCT2620	Intermediate Accounting I	4
ACCT2622	Intermediate Accounting II	4
CPTR1104	Intro to Computer Tech	3
ECON2210	Macroeconomics	3
ENGL1101	College Writing I	3
SPCH1114	Intro to Public Speaking	3
	MN Transfer Elective	9
	Technical Elective	10

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Accounting
AS 64 Credits
Fergus Falls

The A.S. in Accounting is a two-year degree in accounting designed both for the student who wishes to enter the workforce upon graduation and the student who plans to transfer to a four-year college or university. The program offers a balance of general education courses and courses specific to preparing the student for a career in accounting.

Course #	Course Title	Crds
Required		
ACCT1108	Business Math/Calculators	3
ACCT2211	Financial Accounting I	3
ACCT2212	Financial Accounting II	3
ACCT2213	Managerial Accounting	3
ACCT2215	Computerized Acct App	3
ACCT2255	Income Tax-Individual	3
BUS1120	Spreadsheet & Database Concepts	3
BUS1146	Personal Finance	3
BUS2150	Legal Environ of Business	3
BUS2204	Principles of Management	3
BUS2206	Principles of Marketing	3
ECON2210	Macroeconomics	3
ECON2222	Microeconomics	3
ENGL1101	College Writing I	3
PHIL1201	Ethics	3
PSYC1200	General Psychology	3
SOC1111	Intro to Sociology	3
	College Level Elective	1
	MN Transfer Elective	12

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Accounting
Diploma 64 Credits
Detroit Lakes • Moorhead • Wadena

This major provides the knowledge and skills necessary to examine, analyze, interpret and correct accounting data for the purpose of preparing financial statements, budgets, forecast accounting reports, payroll reports, and individual state and federal income tax returns. Computerized accounting concepts are included in this area of study.

Course #	Course Title	Crds
Required		
ACCT1101	Payroll	3
ACCT1108	Business Math/Calculators	3
ACCT1120	Business Law	3
ACCT1124	Spreadsheet Applications	3
ACCT2201	Financial Accounting I Lab	1
ACCT2202	Financial Accounting II Lab	1
ACCT2203	Managerial Accounting Lab	1
ACCT2211	Financial Accounting I	3
ACCT2212	Financial Accounting II	3
ACCT2213	Managerial Accounting	3
ACCT2215	Computerized Acct App	3
ACCT2216	QuickBooks	3
ACCT2255	Income Tax-Individual	3
ACCT2620	Intermediate Accounting I	4
ACCT2622	Intermediate Accounting II	4
ADMS2124	Computer Technology Information	3
CPTR1104	Intro to Computer Tech	3
GSCO1102	Applied Communications	3
GSSI1104	Human Relations	3
GSWS1102	Contemporary Career Search	1
	Technical Elective	10

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Accounting Clerk
Diploma 33 Credits
Detroit Lakes • Moorhead • Wadena

This major provides the knowledge and skills necessary to perform routine calculating, journalizing, posting and verifying duties to maintain accounting records, prepare payroll reports, and individual state and federal tax returns. Both manual and computerized accounting concepts and applications are included.

Course #	Course Title	Crds
Required		
ACCT1101	Payroll	3
ACCT1108	Business Math/Calculators	3
ACCT1124	Spreadsheet Applications	3
ACCT2201	Financial Accounting I Lab	1
ACCT2202	Financial Accounting II Lab	1
ACCT2211	Financial Accounting I	3
ACCT2212	Financial Accounting II	3
ACCT2215	Computerized Acct App	3
ACCT2255	Income Tax-Individual	3
CPTR1104	Intro to Computer Tech	3
GSCO1102	Applied Communications	3
	Technical Electives	4

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Administrative Assistant
AAS 72 Credits
Moorhead

This major is designed to prepare students for employment as administrative secretaries or assistants. The responsibilities of administrative assistants may include processing incoming and outgoing mail, communicating through electronic mail, scheduling, keyboarding documents and forms, transcribing business documents and forms, transcribing business documents from machine dictation, filing and retrieving records, handling telephone calls and making travel arrangements. In addition, they may be given more challenging tasks such as composing and dictating letters, recording meeting minutes, collecting data and performing research, generating reports, maintaining budgets and other bookkeeping applications, and applying supervisory responsibilities. Students in this major will also perform advanced microcomputer applications that will include file transfer options; malicious program items; management techniques; networking and security; data communications; and software evaluation, selection and installation procedures. This major requires strong verbal, listening and writing skills; interpersonal and supervisory skills; ability to keep confidences; knowledge of records management; and knowledge of a variety of software application programs and integrated electronic office systems.

Course #	Course Title	Crds
Required		
ACCT1012	Prin of Bookkeeping	3
ADMS1100	Keyboarding I	3
ADMS1102	Keyboarding II	3
ADMS1110	Word Processing	3
ADMS1112	Desktop Publishing	3
ADMS1116	Business Communications I	3
ADMS1120	Office Procedures	3
ADMS1128	Records/Database Mgmt	3
ADMS1130	Intermediate Software Skills	3
ADMS2124	Computer Technology Information	3
ADMS2202	Advanced Word Processing	3
ADMS2212	Integrated Software Applications	3
ADMS2216	Business Communications II	3
ADMS2222	Adv Desktop Publishing	3
ADMS2240	Internship	3
CPTR1104	Intro to Computer Tech	3

ENGL1101	College Writing I	3
GSSI1104	Human Relations	3
MKTG1120	Supervisory Leadership	3
PHIL1201	Ethics	3
SOC1111	Intro to Sociology	3
SPCH1114	Intro to Public Speaking	3
	MN Transfer Elective	6

Administrative Management Technology

AAS 66 Credits

Detroit Lakes

The Administrative Management Technology program is designed for students who after completion of this degree may seek employment as office managers, office analysts, office assistants, customer service managers or other business-related employment. In addition, graduates may continue their study in a baccalaureate degree program in careers such as computers, operations management or business administration. This degree is also meant for students who wish to enhance their computer skills in today's business world via international industry certifications to help further their career. Students should consult an advisor/counselor for transfer opportunities to Minnesota colleges.

Course #	Course Title	Crds
Prerequisite		
ADMS1100	Keyboarding I	3
Required		
ACCT1124	Spreadsheet Applications	3
ACCT2211	Financial Accounting I	3
ADMS1110	Word Processing	3
ADMS1112	Desktop Publishing	3
ADMS1116	Business Communications I	3
ADMS2124	Computer Technology Info	3
ADMT1173	MS Office Access Certification	1
ADMT1174	MS Office PowerPoint Cert	1
ADMT2222	Event Planning	2
ADMT2224	Applied Event Management	1
ADMT2230	Administrative Project Mgmt	2
BUS1141	Intro to Business	3
CPTR1104	Intro to Computer Tech	3
ENGL1101	College Writing I	3
GSWS1102	Contemporary Career Search	1
INTD1112	Web Graphic Design	3
MKTG1110	Customer Service	3
PHIL1201	Ethics	3
PSYC1200	General Psychology	3
SPCH1114	Intro to Public Speaking	3
	MN Transfer Elective	6
	Technical Elective	10

Administrative Support

Diploma 34 Credits

Moorhead • Wadena • eCampus

This major is designed to prepare students to perform a full range of office tasks. The administrative support person's responsibilities include use of software applications to perform document processing and file management tasks. This major requires strong skills in communications, telephone technique, computer usage and human relations. Other tasks will include communication using electronic mail, electronic scheduling, keying and creating business documents, using manual and electronic filing for retrieving records, handling telephone communications, making travel arrangements and processing incoming and outgoing mail.

Course #	Course Title	Crds
Required		
ACCT1012	Prin of Bookkeeping	3
ADMS1100	Keyboarding I	3
ADMS1102	Keyboarding II	3
ADMS1112	Desktop Publishing	3
ADMS1116	Business Communications I	3
ADMS1120	Office Procedures	3
ADMS1128	Records/Database Mgmt	3
ADMS1130	Intermediate Software Skills	3
ADMS2216	Business Communications II	3
CPTR1104	Intro to Computer Tech	3
GSSI1104	Human Relations	3
GSWS1102	Contemporary Career Search	1

Administrative Support - Bookkeeping Emphasis

Diploma 49 Credits

Moorhead

This emphasis is designed to prepare students to perform bookkeeping and payroll procedures in addition to the job responsibilities that are required for administrative support.

Course #	Course Title	Crds
Required		
ACCT1012	Prin of Bookkeeping	3
ACCT1101	Payroll	3
ACCT1124	Spreadsheet Applications	3
ACCT2201	Financial Accounting I Lab	1
ACCT2211	Financial Accounting I	3
ACCT2215	Computerized Acct App	3
ADMS1100	Keyboarding I	3
ADMS1102	Keyboarding II	3
ADMS1112	Desktop Publishing	3
ADMS1116	Business Communications I	3
ADMS1120	Office Procedures	3
ADMS1122	Machine Transcription	2
ADMS1128	Records/Database Mgmt	3
CPTR1104	Intro to Computer Tech	3
GSSI1104	Human Relations	3
GSWS1102	Contemporary Career Search	1
	Technical Electives	6

Administrative Support - Microcomputer Emphasis

Diploma 49 Credits

Moorhead

This emphasis prepares students to produce creative brochures, newsletters, announcements and technical manuals using various professional publishing and word processing software programs, in addition to the job responsibilities that are required for administrative support.

Course #	Course Title	Crds
Required		
ACCT1012	Prin of Bookkeeping	3
ACCT1124	Spreadsheet Applications	3
ADMS1100	Keyboarding I	3
ADMS1102	Keyboarding II	3
ADMS1110	Word Processing	3
ADMS1112	Desktop Publishing	3
ADMS1116	Business Communications I	3
ADMS1120	Office Procedures	3
ADMS1122	Machine Transcription	2
ADMS1128	Records/Database Mgmt	3
ADMS2124	Computer Technology Information	3
ADMS2212	Integrated Software Applications	3
CPTR1104	Intro to Computer Tech	3
CPTR1106	Microcomputer Databases	3
GSSI1104	Human Relations	3
GSWS1102	Contemporary Career Search	1
	Technical Electives	4

American Sign Language Studies

Certificate 18 Credits

Moorhead

The American Sign Language Studies Certificate provides students with a basic knowledge of American Sign Language and Deaf Culture. The curriculum provides a foundation for entry into a career in a deafness-related fields and prepares students for continued educational studies in more advanced preparation for ASL Interpreter Certification. This program does not prepare students to become interpreters.

Course #	Course Title	Crds
Required		
ASL1111	ASL & Deaf Culture I	3
ASL1112	ASL & Deaf Culture II	3
ASL1113	ASL & Deaf Culture III	4
ASL1114	ASL & Deaf Culture IV	4
CPTR1100	Fund Computer Concepts	1
SPCH2216	Intercultural Comm	3

Architectural Technology

AAS 72 Credits

Detroit Lakes

Students who complete this program will be prepared to obtain employment with architectural and engineering firms, contractors and a variety of manufacturing and distributing companies related to the construction industry. Computer-aided drafting is an important tool for the construction industry and the design professions and is an important part of the Architectural Technology program. This program teaches students the principles of residential and commercial building technology, as well as the drafting skills to apply them. Students also will be enrolled in general education courses selected to complement their technical education. This degree can allow students to continue their education in a number of baccalaureate programs at four-year institutions.

Course #	Course Title	Crds
Required		
ARCH1122	CADD for Architecture	4
ARCH1126	Residential Project I	3
ARCH2226	Residential Project II	4
ARCH2230	Mech/Elec Integration	2
ARCH2236	Presentation	2
ARCH2244	Commercial Projects	4
ARCH2250	Project Administration	2
BLDG1114	Blueprint Reading I	2
BLDG1120	Construction Estimating I	2
BLDG1122	Construction Estimating II	2
CADD1102	Fundamentals of CADD	4
CIVL1102	Survey I: Fundamentals	2
CONM1124	Building Systems	3
CONM2206	Building Codes	2
CPTR1104	Intro to Computer Tech	3
ENGL1101	College Writing I	3
ENGR1100	Project Management	1
ENGR1118	Engineering Applications	3
ENGR1126	Engineering Graphics	3
PSCI1130	State and Local Government	3
SPCH1114	Intro to Public Speaking	3
	MN Transfer Elective	9
	Technical Electives	6

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Art

AFA 60 Credits

Fergus Falls

The 60-credit AFA in Art provides a means for art students to both pursue a four-year degree and/or a career in art. The AFA in Art emphasizes a visual arts focus and offers students preparation for fine arts study at the university level. The AFA in Art at M State provides students the skills to help them develop into professional artists, and it ensures that students will have the necessary coursework to prepare for advanced studies in art. Coursework must be represented from at least 6 of the 10 MnTC goal areas.

Course #	Course Title	Crds
Required		
ART1107	Foundations of Art, 2-D	3
ART1108	Foundations of Art, 3-D	3
ART1111	Beg Drawing	3
ART1112	Beg Painting	3
ART1113	Drawing II	3
ART1121	World of Art I	3
ART1122	World of Art	3
ART1141	Ceramics I	3
ENGL1101	College Writing I	3
ENGL1102	College Writing II	3
PSYC1200	General Psychology	3
SPCH1114	Intro to Public Speaking	3
	MnTC Goal Area 3 Science Course	3
	MnTC Goal Area 4 Math Course	3
	MN Transfer Elective	18

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Auto Body Collision Technology

AAS 72 Credits

Detroit Lakes

Auto body technicians repair and replace damanged portions of automobile bodies and frames, straighten bent frames and/or unibody cars, remove and repair dents in body panels and fenders, and weld breaks in body metals. They install window glass and windshields, sand and mask repair areas, and perform drive train component replacements, wheel alignments and some mechanical and electrical repairs.

Students entering this program should have good mechanical aptitude, good communication skills and the ability to comprehend service literature. Graduates of this program will find opportunities for employment as body repair technicians and may become estimators, service sales persons, service managers or parts managers. Some may move into supervisory positions, start their own repair shops or become insurance company damage appraisers.

Course #	Course Title	Crds
Required		
ABCT1100	Intro to Auto Body	2
ABCT1102	Auto Body Off Car Repair	4
ABCT1104	Auto Body Lab I	3
ABCT1106	Intro to Refinishing	2
ABCT1110	Panel Replacement	2
ABCT1112	Auto Body Refinishing	4
ABCT1114	Auto Body Lab II	4
ABCT1116	Glass and Trim	2
ABCT1118	Basic Electrical	2
ABCT2202	Unibody/Frame Alignment	5
ABCT2206	Mechanical Components I	2
ABCT2208	Major Collision Lab I	3
ABCT2210	Collision Damage Repair	5
ABCT2212	Mechanical Components II	2
ABCT2216	Spot Repair & Paint Blending	2
ABCT2222	Auto Body Internship	1
ENGL1101	College Writing I	3
PHIL1201	Ethics	3
PSYC1200	General Psychology	3
TRNS1118	Welding I	2
TRNS1120	Welding II	1
	MN Transfer Elective	11
	Technical Electives	4

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Auto Body Collision Technology

Diploma 64 Credits

Detroit Lakes

Auto body technicians repair and replace damanged portions of automobile bodies and frames, straighten bent frames and/or unibody cars, remove and repair dents in body panels and fenders, and weld breaks in body metals. They install window glass and windshields, sand and mask repair areas, and perform drive train component replacements, wheel alignments and some mechanical and electrical repairs.

Students entering this program should have good mechanical aptitude, good communication skills and the ability to comprehend service literature. Graduates of this program will find opportunities for employment as body repair technicians and may become estimators, service sales persons, service managers or parts managers. Some may move into supervisory positions, start their own repair shops or become insurance company damage appraisers.

Course #	Course Title	Crds
Required		
ABCT1100	Intro to Auto Body	2
ABCT1102	Auto Body Off Car Repair	4
ABCT1104	Auto Body Lab I	3
ABCT1106	Intro to Refinishing	2
ABCT1110	Panel Replacement	2
ABCT1112	Auto Body Refinishing	4
ABCT1114	Auto Body Lab II	4
ABCT1116	Glass and Trim	2
ABCT1118	Basic Electrical	2
ABCT2202	Unibody/Frame Alignment	5
ABCT2204	Body Shop Operation	3
ABCT2206	Mechanical Components I	2
ABCT2208	Major Collision Lab I	3
ABCT2210	Collision Damage Repair	5
ABCT2212	Mechanical Components II	2
ABCT2216	Spot Repair & Paint Blending	2
ABCT2222	Auto Body Internship	1
CPTR1100	Fund Computer Concepts	1
FYE1101	First Year Experience	3
GSSI1104	Human Relations	3
GSWS1102	Contemporary Career Search	1
TRNS1118	Welding I	2
TRNS1120	Welding II	1
	Auto Body Collision Tech Elect	3
	Entrepreneur Electives	2

Automotive Service Technology

AAS 72 Credits

Detroit Lakes • Moorhead

Automotive service technicians work in an exciting and rapidly changing industry. Students in this program will receive training in the many service and diagnostic procedures necessary to maintain our nation on wheels. Students are trained in modern laboratories equipped with current service and testing equipment. Students in Automotive Service Technology will have the option to choose from diploma and AAS degree programs.

Students entering this program should have good mechanical aptitude, good communication skills and the ability to read and comprehend service literature. Graduates of this program will have a variety of opportunities that include drive line technician, driveability technician, alignment and suspension specialist, transmission specialist, service advisor and manager. Opportunities for advancement may include factory and dealer representative, management and self-employment.

Course #	Course Title	Crds
Required		
AMST1102	Alignment & Suspension I	3
AMST1105	Brakes I	3
AMST1109	Starting & Charging	3
AMST1111	Automotive Electronics	3
AMST1122	Engines I	3
AMST1126	Engines II	3
AMST1132	Drive Trains I	3
AMST2206	Body Elec/Mechanical I	3
AMST2209	Body Elec/Mechanical II	3
AMST2211	Exhaust Analysis Fuel Sys	3
AMST2214	Elec Powertrain Cntrl I	3
AMST2218	Elec Powertrain Cntrl II	3
AMST2220	Ignition Systems	3
AMST2225	Brakes II	3
AMST2233	Auto Transmission I	3
AMST2237	Auto Transmission II	3
AMST2240	Heating Ventilation A/C	3
AMST2292	Internship	1
ENGL1101	College Writing I	3
PHIL1201	Ethics	3
SPCH1114	Intro to Public Speaking	3
TRNS1102	Intro to Transportation	2
	MN Transfer Elective	9

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Automotive Service Technology

Diploma 69 Credits

Detroit Lakes • Moorhead

Automotive service technicians work in an exciting and rapidly changing industry. Students in this program will receive training in the many service and diagnostic procedures necessary to maintain our nation on wheels. Students are trained in modern laboratories equipped with current service and testing equipment. Students in Automotive Service Technology will have the option to choose from diploma and AAS degree programs.

Students entering this program should have good mechanical aptitude, good communication skills and the ability to read and comprehend service literature. Graduates of this program will have a variety of opportunities that include drive line technician, driveability technician, alignment and suspension specialist, transmission specialist, service advisor and manager. Opportunities for advancement may include factory and dealer representative, management and self-employment.

Course #	Course Title	Crds
Required		
AMST1102	Alignment & Suspension I	3
AMST1105	Brakes I	3
AMST1109	Starting & Charging	3
AMST1111	Automotive Electronics	3
AMST1122	Engines I	3
AMST1126	Engines II	3
AMST1132	Drive Trains I	3
AMST1136	Drive Trains II	3
AMST2201	Alignment & Suspension II	3
AMST2206	Body Elec/Mechanical I	3
AMST2209	Body Elec/Mechanical II	3
AMST2211	Exhaust Analysis Fuel Sys	3
AMST2214	Elec Powertrain Cntrl I	3
AMST2218	Elec Powertrain Cntrl II	3
AMST2220	Ignition Systems	3
AMST2225	Brakes II	3
AMST2233	Auto Transmission I	3
AMST2237	Auto Transmission II	3
AMST2240	Heating Ventilation A/C	3
AMST2292	Internship	1
CPTR1104	Intro to Computer Tech	3
GSCO1102	Applied Communications	3
GSSI1104	Human Relations	3
TRNS1102	Intro to Transportation	2

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Billing Compliance Specialist

Certificate 25 Credits

Detroit Lakes • eCampus

Billing compliance specialists supervise medical coders, audit medical records and provide feedback on appropriate code selection to physicians and coding staff. They are responsible for ensuring that government and third-party (insurance company) guidelines are followed and for writing compliance plans and associated procedures.

Course #	Course Title	Crds
ADMM2122	Medical Office Management	3
ADMM2154	Hospital Billing	2
ADMM2262	Auditing the Med Record-Surg	3
ADMM2264	Auditing the Med Record-Facility	2
ADMM2266	Auditing the Medical Record- E/M	3
ADMM2280	Compliance Plan Development	3
ADMM2282	Compliance Plan Presentations	3
ENGL1220	Professional & Technical Writing	3
HITM1155	Medicolegal Aspects	3

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Bio-fuels Technology

AAS 72 Credits

Moorhead

The Bio-fuels Technology program is designed to prepare students to work in the emerging field of bio-renewable energy production. The first two semesters consist of general education courses in science, math and communications, along with an introductory electronics course and two process control and instrumentation courses. Many of the general education classes are available online. In the second half of the program, students will focus on the major technical elements of laboratory instrumentation, bio-fuels production, plant operations and controls systems, along with industry internship experiences.

Course #	Course Title	Crds
Required		
BIOL1111	General Biology I	4
BIOF1101	Fund of Alt Energy & Environ I	3
CHEM1100	Fund Concepts Chem	3
ENGL1101	College Writing I	3
MATH1114	College Algebra	4
BIOF1102	Fund of Alt Energy & Environ II	3
BIOL2220	General Microbiology	4
CHEM1115	Intro to Organic & Biochem	4
ELEC1150	Intro to Electronics	4
NANO2205	Lab Instrumentation	6
BIOF2201	Fund of Biofuels Prod	3
CPTR1104	Intro to Computer Tech	3
ELEC2254	Instrumentation & Control Sys	5
ELEC2255	Proc Measurement & Control Valves	4
NANO2207	Nanobiotech & Nanomed	3
BIOF2202	Pilot Plant Op/Adv Proc Control	3
ENGL1220	Prof & Tech Writing	3
NANO2211	Manuf Quality Assurance	3
NANO2232	Industry Internship Exp III	4
PHIL2225	Bioethics	3

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Biological Sciences

AS 60 Credits

Fergus Falls • Moorhead

This degree is designed for students interested in various fields of biological sciences such as cell biology, bioengineering, environmental science, fish and wildlife management, forestry, genetics and microbiology. Students majoring in biological sciences may also be interested in the following program areas: biochemistry, chemistry, pre-chiropractic, pre-dentistry, pre-medicine, pre-medical technology, pre-optometry, pre-pharmacy and pre-veterinary medicine. The curriculum below should be used as a guide since required courses vary considerably among four-year institutions and professional schools. Students planning a degree in biological sciences or one of the above fields should contact the biology department and work with a counselor or advisor to identify transfer options. A visit to the intended transfer institution by the spring of the first year is highly recommended.

Course #	Course Title	Crds
Core Courses		
BIOL1111	General Biology I	4
BIOL1112	General Biology II	4
BIOL2240	Genetics	4
CHEM1111	General Inorganic Chemistry I	5
CHEM1112	General Inorganic Chemistry II	5
ENGL1101	College Writing I	3
ENGL1102	College Writing II	3
MATH1114	College Algebra	4
MATH1115	Pre-Calculus	4
PHYS1401	College Physics I	4
PHYS1402	College Physics II	4
Fergus Falls Track		
CHEM2224	Organic Chemistry I	5
CHEM2225	Organic Chemistry II	5
	MN Transfer Elective	6
Moorhead Track		
BIOL2010	General Ecology	4
BIOL2220	General Microbiology	4
MATH1213	Intro to Statistics	4
PSYC1200	General Psychology	3
SPCH1114	Intro to Public Speaking	3

Biotechnology

AAS 70 Credits

Moorhead

The Biotechnology curriculum is intended to meet the increasing demands for laboratory technicians skilled in a variety of techniques commonly used in biotechnology. The program objectives are designed to prepare graduates to serve as research assistants and technicians in laboratory and industrial settings and as quality control/quality assurance technicians.

Course #	Course Title	Crds
Required		
BIOL1111	General Biology I	4
BIOL1115	Introduction to Biotechnology	3
BIOL2220	General Microbiology	4
BIOT2210	Biotechnology Methods I	3
BIOT2220	Biotechnology Methods II	3
BIOT2230	Fundamentals of Bioprocessing	3
CHEM1100	Fund Concepts Chemistry	3
CHEM1115	Intro to Organic and Biochemistry	4
CPTR1104	Intro to Computer Tech	3
ENGL1101	College Writing I	3
ENGL1220	Professional & Technical Writing	3
MATH1114	College Algebra	4
MATH1213	Intro to Statistics	4
NANO2205	Laboratory Instrumentation	6
NANO2207	Nanobiotech& Nanobiomed	3
NANO2211	Manufacturing Quality Assurance	3
NANO2212	Surface & Thin Film Analysis Tech	3
NANO2232	Industry Internship Experience III	5
PHIL2225	Bioethics	3
PHYS1105	Fundamental Concepts in Physics	3

Business

AS 60 Credits

Fergus Falls • Moorhead • eCampus

The Business AS degree is a flexible degree designed for students who want to continue their education or enter the workforce in a business-related career. This degree is 60 credits in length, including 30 semester credits in general education from six of the 10 goal areas of the Minnesota Transfer Curriculum and 30 technical credits. Students completing this degree may further their education by obtaining a degree through articulation agreements with baccalaureate degree-granting institutions. Emphasis is placed on contemporary business practices through coursework in management, marketing, economics, accounting, technology and communications.

Course #	Course Title	Crds
Core Courses		
ACCT2211	Financial Accounting I	3
ACCT2212	Financial Accounting II	3
ACCT2213	Managerial Accounting	3
BUS1120	Spreadsheet & Database Concepts	3
BUS2204	Principles of Management	3
BUS2206	Principles of Marketing	3
BUS2220	Global Business	3
ECON2210	Macroeconomics	3
ECON2222	Microeconomics	3
ENGL1101	College Writing I	3
ENGL1102	College Writing II	3
MATH1114	College Algebra	4
MATH1122	Applied Calc/Linear Alg	3
MATH1213	Intro to Statistics	4
	Technical Electives	9
Fergus Falls Track		
SOC1111	Intro to Sociology	3
OR		
PSYC1200	General Psychology	3
	MN Transfer Elective	1
Moorhead Track		
PSYC1200	General Psychology	3
SOC1111	Intro to Sociology	3

Business Entrepreneurship

AAS 67 Credits

Detroit Lakes • eCampus

As an entrepreneur, you can create your own path to success and work to make your dream a reality. This degree teaches students the skills and behaviors that contribute to personal and business success. This program also prepares students to assess new enterprise opportunities, obtain financial resources, prepare a business plan and market a venture for success. Students will gain the confidence and skills to launch a new venture in an area of expertise, grow an existing business or pursue an advanced degree.

Course #	Course Title	Crds
Required		
ACCT1108	Business Math/Calculators	3
ACCT1120	Business Law	3
ACCT1124	Spreadsheet Applications	3
ACCT2211	Financial Accounting I	3
ADMS1116	Business Communications I	3
ADMT1174	MS Office PowerPoint Cert	1
BMGT1112	Business Plan Dvlpmnt	2
BUS1141	Intro to Business	3
CPTR1104	Intro to Computer Tech	3
ECON2210	Macroeconomics	3
ENGL1101	College Writing I	3
ENTR1100	Intro to Entrepreneurship	3
ENTR1400	Opportunity Analysis	3
ENTR2200	Entrepreneurial Field Studies	3
ENTR2220	Business Ethics/Professionalism	3
GSWS1102	Contemporary Career Search	1
MKTG1100	Prin of Marketing	3
MKTG2200	Prin of Management	3
PSYC1200	General Psychology	3
SPCH1114	Intro to Public Speaking	3
	MN Transfer Elective	6
	Technical Electives	6

Business Management

AS 60 Credits

Fergus Falls

The AS in Business Management is a two-year degree designed to prepare students pursuing a career in business at the junior level of management. The degree is designed for the student who wishes to enter the workforce upon graduation, as well as the student who plans to transfer to a four-year college or university. The program offers a balance of general education courses and courses specific to preparation for a career in business management.

Course #	Course Title	Crds
Required		
ACCT1108	Business Math/Calculators	3
ACCT2211	Financial Accounting I	3
ACCT2212	Financial Accounting II	3
ACCT2213	Managerial Accounting	3
BUS1120	Spreadsheet & Database Concepts	3
BUS1143	Office Procedures	3
BUS2150	Legal Environ of Business	3
BUS2202	Mgmt Information Sys	3
BUS2204	Principles of Management	3
BUS2206	Principles of Marketing	3
ECON2210	Macroeconomics	3
ECON2222	Microeconomics	3
ENGL1101	College Writing I	3

PHIL1201	Ethics	3
PSYC1200	General Psychology	3
SOC1111	Intro to Sociology	3
	MN Transfer Electives	12

Business Management/Ownership

Diploma 35 Credits

Detroit Lakes

The primary purpose of this program is to prepare men and women for management or ownership of a small business. The program will not only prepare students for business management but also enable them to better manage their own personal affairs. It will especially help students who have some of the skills and competencies needed but lack the organization and understanding of business management necessary to be successful. Following completion of classroom work, students will be assisted in starting their own businesses or finding jobs with businesses that offer employment suited to their individual career objectives. This program requires a genuine interest in people, a strong desire to be your own boss and a willingness to expend above-average time and energy toward goal accomplishment.

Course #	Course Title	Crds
Required		
ACCT1108	Business Math/Calculators	3
ACCT1120	Business Law	3
ACCT1124	Spreadsheet Applications	3
ACCT2211	Financial Accounting I	3
BMGT1112	Business Plan Dvlpmnt	2
BUS1141	Intro to Business	3
CPTR1104	Intro to Computer Tech	3
ENTR1400	Opportunity Analysis	3
MKTG1100	Prin of Marketing	3
MKTG1110	Customer Service	3
MKTG2200	Prin of Management	3
MKTG2290	Supervised Occup Exp I	3

Business: Fashion Marketing and Management

AAS 70 Credits

Moorhead

This program is designed to prepare students with the skills necessary for management careers in the apparel and accessory industry. Students are provided with essential skills in sales, marketing, management, computer technology, merchandise presentation, buying, customer service and product knowledge. There is emphasis is on professional competence in the areas of apparel and accessory display, buying, selling and management.

General education courses are required. Nine of the 18 general education credits are in College Writing I, Macroeconomics and Introduction to Public Speaking. The student chooses courses to complete the remaining nine credits.

Course #	Course Title	Crds
Required		
ACCT1012	Prin of Bookkeeping	3
ACCT1108	Business Math/Calculators	3
ACCT1120	Business Law	3
BUS2204	Principles of Management	3
BUS2206	Principles of Marketing	3
BUS2220	Global Business	3
ECON2222	Microeconomics	3
ENGL1101	College Writing I	3
FASH1140	Textiles	3
FASH1144	Fashion History & Trends	3
FASH1152	Professional Image Strategies	3
FASH2248	Buying	3
FASH2250	Visual Merchandising	3
MKTG1106	Professional Selling	3
MKTG1110	Customer Service	3
MKTG2204	Advanced Professional Selling	3
MKTG2234	Computer Marketing Applications	3
SPCH1114	Intro to Public Speaking	3
	Art Electives MNTC Goal Area 6	3
	MN Transfer Electives	6
	Technical Electives	7

Business: Management, Marketing and Sales

AAS 70 Credits

Moorhead

The Business Management, Marketing and Sales AAS major includes marketing, management and other business courses, as well as general education courses.

This program is designed to prepare students to succeed in the marketplace. The major provides students with the skills needed for a variety of careers in sales, marketing and management fields. Curriculum includes instruction in sales, marketing, research, customer service and small business planning, with emphasis on developing skills in management decision-making, interpersonal communications, problem solving and technology.

In the AAS, students are also required to complete 18 credits of general education courses, including College Writing I and Introduction to Public Speaking. The student chooses the remaining 12 credits of general education.

Course #	Course Title	Crds
Required		
ACCT1012	Prin of Bookkeeping	3
ACCT1108	Business Math/Calculators	3
ACCT1120	Business Law	3
BUS2204	Principles of Management	3
BUS2206	Principles of Marketing	3
BUS2220	Global Business	3
ECON2222	Microeconomics	3
ENGL1101	College Writing I	3
MKTG1106	Professional Selling	3
MKTG1110	Customer Service	3
MKTG1112	Retail Management	3
MKTG1116	Advertising and Promotion	3
MKTG2204	Advanced Professional Selling	3
MKTG2214	E-Marketing	3
MKTG2230	Marketing Research	3
MKTG2234	Computer Marketing Applications	3
MKTG2400	Marketing Management	4
SPCH1114	Intro to Public Speaking	3
	MN Transfer Elective	9
	Technical Electives	6

Business: Management, Marketing and Sales

Diploma 70 Credits

Moorhead

The Business Management, Marketing and Sales diploma major places an emphasis on marketing, management and other business courses. General education courses are not required.

This program is designed to prepare students to succeed in the marketplace by providing the essential skills necessary for careers in sales, marketing and management fields. Curriculum includes instruction in sales, marketing, research, customer service and small business planning. Emphasis is on developing skills in management decision-making, interpersonal communications, problem solving and technology.

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Students have the opportunity to apply concepts they have learned in introductory marketing and management courses. Special emphasis is placed on applying these skills through the use of computer technology.

Course #	Course Title	Crds
Required		
ACCT1012	Prin of Bookkeeping	3
ACCT1108	Business Math/Calculators	3
ACCT1120	Business Law	3
BUS2204	Principles of Management	3
BUS2206	Principles of Marketing	3
ECON1150	Essentials of Economics	3
ENGL1101	College Writing I	3
MKTG1106	Professional Selling	3
MKTG1110	Customer Service	3
MKTG1112	Retail Management	3
MKTG1116	Advertising and Promotion	3
MKTG1130	Leadership Ethics	3
MKTG2204	Advanced Professional Selling	3
MKTG2222	Human Resource Mgmt	3
MKTG2230	Marketing Research	3
MKTG2234	Computer Marketing Applications	3
MKTG2236	Small Business Mgmt	3
MKTG2400	Marketing Management	4
SPCH1114	Intro to Public Speaking	3
	Technical Electives	12

Carpentry
AAS 72 Credits
Moorhead

The Carpentry program prepares students with skills and knowledge for a career in residential carpentry. Program coursework provides a mix of technical education, general studies, theory and hands-on learning experiences. Students in this program progress from basic skills to those required of a carpenter. General areas of study include building codes, blueprint reading and sketching, estimating, site layout, concrete, framing, interior and exterior finish, cabinet making and installation, and decks. The Carpentry AAS program provides graduates with the skills required of a carpenter in a variety of building construction settings common in both rural and metropolitan areas.

Course #	Course Title	Crds
Required		
BLDG1114	Blueprint Reading I	2
BLDG1120	Construction Estimating I	2
CARP1102	Prin of Framing	3
CARP1104	Framing I	6
CARP1108	Interior Finish I	4
CARP1110	Intro to Cabinet Building	3
CARP1112	Exterior Finish I	3
CARP2106	Footings & Foundations	2
CARP2202	Prin of Framing II	3
CARP2206	Adv Framing Applications	6
CARP2208	Exterior Finish II	3
CARP2210	Interior/Exterior Finish Prin	3
CARP2212	Interior Finish II	4
CARP2220	Carpentry Internship	3
ENGL1101	College Writing I	3
PHIL1201	Ethics	3
PSYC1200	General Psychology	3
SPCH1114	Intro to Public Speaking	3
	MN Transfer Elective	8
	Technical Electives	5

Carpentry
Diploma 64 Credits
Moorhead

The Carpentry program prepares students with the skills and knowledge for a career in residential carpentry. Program coursework provides the student with a mix of technical and general education, theory and hands-on learning experiences. The student in this program progresses from basic skills to those required of a carpenter. General areas of study include building codes, blueprint reading and sketching, estimating, site layout, concrete, framing, interior and exterior finish, cabinet making and installation, and decks. The Carpentry diploma program provides graduates with skills required of a carpenter in a variety of building construction settings common in both rural and metropolitan areas.

Course #	Course Title	Crds
Required		
BLDG1114	Blueprint Reading I	2
BLDG1120	Construction Estimating I	2
CARP1102	Prin of Framing	3
CARP1104	Framing I	6
CARP1108	Interior Finish I	4
CARP1110	Intro to Cabinet Building	3
CARP1112	Exterior Finish I	3
CARP2106	Footings & Foundations	2
CARP2202	Prin of Framing II	3
CARP2204	Concrete Technology	2
CARP2206	Adv Framing Applications	6
CARP2208	Exterior Finish II	3
CARP2210	Interior/Exterior Finish Prin	3
CARP2212	Interior Finish II	4
CARP2220	Carpentry Internship	3
CPTR1104	Intro to Computer Tech	3
GSMS1000	Technical Mathematics	3
GSMS1110	First Aid / CPR	1
GSWS1102C	ontemporary Career Search	1
	General Studies Elective	1
	Technical Electives	6

Carpentry - Residential
Diploma 34 Credits
White Earth

This program prepares the student with skills and knowledge for a career in residential carpentry. The program coursework includes a mix of technical education, general studies, theory and hands-on learning experiences, The student progresses from basic skills to those required of a carpenter. General areas of study include building codes, blueprint reading, estimating, site layout, concrete, framing, interior and exterior finish, cabinet construction and installation, and decks. The Residential Carpentry diploma program provides graduates with skills required of a carpenter in a variety of building construction settings common in both rural and metropolitan areas.

Course #	Course Title	Crds
Required		
BLDG1114	Blueprint Reading I	2
BLDG1120	Construction Estimating I	2
CARP1102	Prin of Framing	3
CARP1104	Framing I	6
CARP1108	Interior Finish I	4
CARP1110	Intro to Cabinet Building	3
CARP1112	Exterior Finish I	3
CARP2106	Footings & Foundations	2
CARP2214	Exterior Siding	2
CARP2216	Deck Construction	2
CARP2218	Soffits, Gutters, Gables	2
	General Studies Electives	3

Carpentry Assisting
Certificate 30 Credits
Moorhead

The Carpentry program prepares the student with skills and knowledge for a career in residential carpentry. The program coursework will provide the student with a mix of technical education, general studies, theory and hands-on learning experiences. The student in this program progresses from basic skills to those required of a carpenter. General areas of study include building codes, blueprint reading and sketching, estimating, site layout, concrete, framing, interior and exterior finish, cabinet making and installation, and decks. The Carpentry certificate program provides graduates with skills required of a carpenter in a variety of building construction settings common in both rural and metropolitan areas.

Course #	Course Title	Crds
Required		
CARP1102	Prin of Framing	3
CARP1104	Framing I	6
CARP1108	Interior Finish I	4
CARP1110	Intro to Cabinet Building	3
CARP1112	Exterior Finish I	3
CARP2106	Footings & Foundations	2
CARP2220	Carpentry Internship	3
GSMS1000	Technical Mathematics	3
GSMS1110	First Aid / CPR	1
	Technical Electives	2

Carpentry Science
Diploma 33 Credits
Wadena

The Carpentry Science program gives students the skills and knowledge to pursue careers in residential carpentry. Students will receive hands-on experience along with classroom training in all aspects of building from the ground up. Courses in blueprint reading, estimating, cabinetmaking, building skills and principals of finishing will prepare the student to enter the workforce in a variety of carpentry-related jobs. Energy efficiency and green building are included in the coursework.

Course #	Course Title	Crds
Required		
BLDG1114	Blueprint Reading I	2
BLDG1120	Construction Estimating I	2
CARP1103	Building Skills - Lecture	3
CARP1107	Principles of Finishing - Lecture	2
CARP1110	Intro to Cabinet Building	3
CARP1133	Building Skills - Lab	9
CARP1137	Principles of Finishing - Lab	9
CPTR1104	Intro to Computer Tech	3

Child Care and Education - Level II

Certificate 25 Credits

Detroit Lakes • Corporate Credit

This program includes coursework in child development birth through age 8, behavior guidance, development of environments and curriculum for infant/toddler, preschool and primary school children, relationships with families and sign language, as well as on-site experiences in a variety of programs.

Course #	Course Title	Crds
Required		
CDEV1105	Development/Guidance	3
CDEV1107	Intro to Early Educ	3
CDEV2200	Integrating Play	3
CDEV2229	Imaginative Learning	3
CDEV2236	Occupational Experience	1
CDEV2244	Parent & Professional Relations	3
CDEV2250	Sign Language	1
CPTR1104	Intro to Computer Tech	3
GSMS1110	First Aid / CPR	1
GSWS1102	Contemporary Career Search	1

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Cisco Networking

Certificate 12 Credits

Detroit Lakes • Wadena • eCampus • Corporate Credit

This 12-credit certificate will prepare students to take the Cisco Certified Network Associate (CCNA) certification and also the CompTIA Network+ certification. Coursework includes Cisco semesters 1-4. Skill development covers LAN/WAN networking technology and concepts, networking math, networking media, router configuration, switching, VLANS, routing protocols and WAN links and services. The instructor will evaluate computer skills necessary to enter this certificate program. Students should have good reading and study skills, basic computer literacy and awareness of the Internet. Prior experience with computer hardware, binary math and basic electronics is desired but not required. Background in cabling is beneficial. Upon completion of this certificate, the student will be able to take the Cisco CCNA and CompTIA Network+ certification exams offered though a VUE or Prometric testing center.

Course #	Course Title	Crds
Required		
CPTR1108	CISCO 1	3
CPTR1118	CISCO 2	3
CPTR2200	CISCO 3	3
CPTR2208	CISCO 4	3

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Civil Engineering Technology

AAS 72 Credits

Detroit Lakes

Men and women completing the Civil Engineering Technology program are prepared for employment in civil engineering fields. Civil engineering technicians plan, design and monitor construction, and they maintain public or private works systems with the collaboration and direction of engineers. They gather preliminary data, plan, budget, survey, design, prepare construction documents and administer contracts to provide safe and convenient facilities that include highways, bridges, airports, structures, water treatment and distribution systems, and waste water collection and treatment systems. Opportunities are available with state, county and city transportation departments, as well as consulting engineering firms. Students will learn graphic communication skills, advanced surveying techniques and a variety of skills related to engineering technologies. Students will also be enrolled in general education classes selected to build a foundation for their technical courses. This AAS degree can allow students to continue their education in a number of baccalaureate programs at four-year institutions.

Course #	Course Title	Crds
Required		
BLDG1114	Blueprint Reading I	2
CADD1102	Fundamentals of CADD	4
CIVL1102	Survey I: Fundamentals	2
CIVL1119	Survey II: Land Surveys	3
CIVL1138	CADD II: Plan Layout	3
CIVL2209	Construction Inspection	3
CIVL2210	Road Design	3
CIVL2230	Civil Engineering Tech Intern	3
CIVL2232	Survey III: Legal Surveys	3
CIVL2234	Utility Design	3
CIVL2238	CADD III: Project Design	3
CIVL2240	Intro to GIS	3
CONM2204	Materials Testing	3
CPTR1104	Intro to Computer Tech	3
ENGL1101	College Writing I	3
ENGR1100	Project Management	1
ENGR1118	Engineering Applications	3
ENGR1126	Engineering Graphics	3
PSCI1130	State and Local Government	3
SPCH1114	Intro to Public Speaking	3
	MN Transfer Elective	9
	Technical Electives	6

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Computer & Network Technology

AAS 66 Credits

Wadena • eCampus • Corporate Credit

This major provides the skills to support and maintain computer network systems in a business environment. Computer skill development covers the hardware and software systems of current computer technology. Networking skills include switching, routing, server operating system, directory services and security. Application software skills include software selection, customizing, training and support. Many classes are built around specific industry certifications. Students are encouraged to complete the requirement for vendor certification.

Course #	Course Title	Crds
Required		
CPTR1104	Intro to Computer Tech	3
CPTR1106	Microcomputer Databases	3
CPTR1108	CISCO 1	3
CPTR1110	Visual Basic Program I	3
CPTR1118	CISCO 2	3
CPTR1125	IT Essentials	3
CPTR1148	Microcomputer Operating Sys	3
CPTR2200	CISCO 3	3
CPTR2208	CISCO 4	3
CPTR2236	Network Security	3
CPTR2245	Enterprise Network Tech	3
CPTR2252	Microcomputer Systems Project	2
CPTR2272	Network Operating Systems	3
CPTR2282	E-mail Administration	3
CSEC2204	Managing Directory Services	3
CVNP2212	VoIP/IP Telephony	4
GSWS1102	Contemporary Career Search	1
ENGL1101	College Writing I	3
PHIL1201	Ethics	3
PSYC1200	General Psychology	3
SPCH1114	Intro to Public Speaking	3
	MN Transfer Elective	5
	Technical Electives	3

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Computer & Network Technology

Certificate 30 Credits

Wadena • eCampus

This major provides the support skills needed to assist computer users in a small business environment and to install and monitor local networks. Skill development covers introduction to microcomputer and data communications technology, network operating systems and the related software applications. Hardware skills include working concepts of selection, configuration and operation of microcomputer central processing units, peripheral equipment and data communications equipment. Software skills include the process of and knowledge development of software selection, customizing, upgrading, training and user support.

Course #	Course Title	Crds
Required		
ADMS2124	Computer Technology Information	3
CPTR1104	Intro to Computer Tech	3
CPTR1106	Microcomputer Databases	3
CPTR1108	CISCO 1	3
CPTR1122	Microcomputer Maintenance	3
CPTR1138	Information Systems	3
CPTR1148	Microcomputer Operating Sys	3
CPTR2272	Network Operating Systems	3
GSSI1104	Human Relations	3
SPCH1114	Intro to Public Speaking	3

Computer & Network Technology

Diploma 33 Credits

Detroit Lakes • Wadena • eCampus

This major provides the skills to support and maintain computer network systems in a business environment. Computer skill development covers the hardware and software systems of current computer technology. Networking skills include switching, routing, server operating system, directory services and security. Application software skills include software selection, customizing, training and support. Many classes are built around specific industry certifications. Students are encouraged to complete the requirement for vendor certification.

Course #	Course Title	Crds
Required		
CPTR1104	Intro to Computer Tech	3
CPTR1106	Microcomputer Databases	3
CPTR1108	CISCO 1	3
CPTR1118	CISCO 2	3
CPTR1122	Microcomputer Maintenance	3
CPTR1138	Information Systems	3
CPTR1148	Microcomputer Operating Sys	3
CPTR2272	Network Operating Systems	3
CSEC1110	Fundamentals of IT Security	3
CTEC1106	Helpdesk Operations	3
GSWS1102	Contemporary Career Search	1

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Computer Help Desk Technician

AAS 68 Credits

Detroit Lakes • eCampus

A computer help desk technician interacts with individuals in business, industry, education and government by providing technical solutions to customer-critical problems related to software applications and relevant hardware. This is accomplished through problem analysis using phone service support, direct client service and a variety of electronic means to achieve high-level customer satisfaction and to accomplish the goals of the organization.

Course #	Course Title	Crds
Required		
CPTR1104	Intro to Computer Tech	3
CPTR1106	Microcomputer Databases	3
CPTR1122	Microcomputer Maintenance	3
CPTR1138	Information Systems	3
CPTR1142	Network Essentials	3
CPTR1148	Microcomputer Operating Sys	3
CPTR2272	Network Operating Systems	3
CSEC1102	Careers in Information Systems	1
CSEC1110	Fundamentals of IT Security	3
CTEC1104	Technical Research	3
CTEC1106	Helpdesk Operations	3
CTEC2204	Adv Technical Support	3
ENGL1101	College Writing I	3
GSWS1102	Contemporary Career Search	1
INTD1110	Intro to Web Programming	3
INTD1112	Web Graphic Design	3
PHIL1201	Ethics	3
SPCH1114	Intro to Public Speaking	3
	MN Transfer Elective	9
	Technical Electives	9

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Computer Help Desk Technician

Diploma 34 Credits

Detroit Lakes

A Computer Help Desk Technician interacts with individuals in business, industry, education, and government by providing technical solutions to customer critical problems related to software applications and relevant hardware. This is accomplished through problem analysis using phone service support, direct client service, and a variety of electronic means to achieve high level customer satisfaction and to accomplish the goals of the organization.

Course #	Course Title	Crds
Required		
CPTR1104	Intro to Computer Tech	3
CPTR1122	Microcomputer Maintenance	3
CPTR1148	Microcomputer Operating Sys	3
CTEC1102	Technology & Organization	3
CTEC1104	Technical Research	3
CTEC1106	Helpdesk Operations	3
CTEC2204	Adv Technical Support	3
INTD2230	Emerg Tech-Resrch & Feasibility	1
	General Studies Electives	3
	Technical Electives	9

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Computer Network Security

AAS 71 Credits

Detroit Lakes

This program prepares students to enter the high-demand field of information technology networking and security. With the increase of viruses, spyware/adware and hacking incidents, companies need professionals skilled in protecting data and equipment from internal and external security threats. Students gain hands-on experience in LAN and WAN technologies utilizing current hardware and software. Emphasis is placed on identifying and implementing appropriate security policies and procedures that meet the unique and dynamic needs of information systems in businesses of various types and sizes.

Because new information security threats continually stimulate demand for workers in this specialized field, job growth is expected to climb at a rate faster than average as compared to other occupations. The computer networking and security skills that students acquire in this program help graduates obtain a rewarding career in this highly challenging field.

Course #	Course Title	Crds
Prerequisites		
MATH0090	Introductory Algebra	3
Required		
CPTR1100	Fund Computer Concepts	1
CPTR1108	CISCO 1	3
CPTR1118	CISCO 2	3
CPTR2224	Linux I	3
CPTR2234	Linux II	3
CPTR2272	Network Operating Systems	3
CPTR2282	E-mail Administration	3
CSEC1102	Careers in Information Systems	1
CSEC1110	Fundamentals of IT Security	3
CSEC2202	Introduction to Wireless Networking	3
CSEC2204	Managing Directory Services	3
CSEC2210	Sec Breaches & Countermeasures	3
CSEC2212	Web Security	3
CSEC2216	Advanced Routing	4
CSEC2218	Disaster Recovery	2
CSEC2222	Network Security Design	3
CSEC2228	Network Defense	3
CSEC2230	Computer Forensics	3
ENGL1101	College Writing I	3
INTD1104	Systems Administration	3
PHIL1201	Ethics	3
PSYC1200	General Psychology	3
SPCH1114	Intro to Public Speaking	3
	MN Transfer Elective	6

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Computer Network Security

Certificate 12 Credits

Detroit Lakes • eCampus

This major provides the skills to support and maintain computer network systems in a business environment. Computer skill development covers the hardware and software systems of current computer technology. Networking skills include switching, routing, server operating system, directory services and security. Application software skills include software selection, customizing, training and support. Many classes are built around specific industry certifications. Students are encouraged to complete the requirement for vendor certification.

Course #	Course Title	Crds
Required		
CPTR2236	Network Security	3
CSEC2210	Sec Breaches & Countermeasures	3
CSEC2212	Web Security	3
CSEC2228	Network Defense	3

Computer Programming

AAS 70 Credits

Moorhead • eCampus

This program provides the programming skills needed in computer application development, database management, computer systems, operations and data communications. Students learn to design, write, code, document and implement computer programs for various computer platforms. They learn at least one minicomputer operating system, one command-level language, one database management system and programming languages.

The program prepares students to design and develop computer hardware/software systems as well as design information management systems. It includes the study of languages, software design, science and information flow and processing. Students study the design of mathematical and simulations models and large-scale programs used for processing and retrieving information.

Course #	Course Title	Crds
Corequisites		
CPTR1104	Intro to Computer Tech	3
Required		
CPTR1106	Microcomputer Databases	3
CPTR1110	Visual Basic Program I	3
CPTR1112	Visual Basic Program II	3
CPTR1114	COBOL Programming I	3
CPTR1128	RPG/OS400 I	4
CPTR1138	Information Systems	3
CPTR1166	Word Processing and Spreadsheets	4
CPTR1170	Web Engineering I	3
CPTR2220	COBOL Programming II	3
CPTR2228	RPG/OS400 II	4
CPTR2230	Struc Query Language	3
CPTR2242	Java Programming	3
CPTR2252	Microcomputer Systems Project	3
ENGL1101	College Writing I	3
GSWS1102	Contemporary Career Search	1
SPCH1114	Intro to Public Speaking	3
	MN Transfer Elective	9
	Math Reasoning Elect Goal 4	3
	Technical Electives	9

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Computer Support Essentials

Certificate 15 Credits

Detroit Lakes • eCampus

This major provides the support skills needed to assist computer users in a business environment and to install and administer local and wide-area networks. Skill development covers microcomputer and data communications technology, network operating systems and the related software applications. Hardware skills include selection, configuration and operation of microcomputer central processing units, peripheral equipment and data communications equipment. Software skills include software selection, customizing, upgrading, training and user support. Upon completion of many of the courses, the student will be able to take the Microsoft certification course.

A certificate is awarded after successful completion of the specialized program of study. Although the certificate is not designed for transfer, most certificate courses also apply toward the Computer and Network Technology AAS degree offered by the college.

Course #	Course Title	Crds
Required		
CPTR1104	Intro to Computer Tech	3
CPTR1122	Microcomputer Maintenance	3
CPTR1138	Information Systems	3
CPTR1142	Network Essentials	3
CTEC1106	Helpdesk Operations	3

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Construction Electricity

Diploma 74 Credits

Moorhead • Wadena

The Construction Electricity diploma program is designed to prepare the student to build, install, maintain and repair electrical systems that provide heat, light or power for residential, commercial and industrial structures. Technical and general studies courses provide students with a mix of theory and hands-on application in classroom, lab settings and at job sites. This comprehensive program includes maintenance of electrical equipment, wiring methods, blueprint reading, material selection, programmable controllers and National Electric Code.

Course #	Course Title	Crds
Required		
BLDG1102	Construction Safety	1
CONE1102	Intro Elec Circuit Theory	4
CONE1104	Intro to NEC	2
CONE1107	Intro Residential Wiring	3
CONE1108	Electrical Circuit Theory	4
CONE1110	AC/DC Motors/Generators	4
CONE1112	Residential Wiring	3
CONE1114	National Electrical Code	2
CONE1116	Conduit/Tool Applications	2
CONE1118	Electrical Services	3
CONE1120	Electrical Blueprints	3
CONE1122	Intro to Materials	1
CONE1124	Intro Elec Blueprint Read	2
CONE2202	Heating/Cooling Controls	3
CONE2205	Intro Commercial Wiring	3
CONE2206	Intro Motor Control Applic	3
CONE2208	Prog Logic Controllers	2
CONE2211	Electronic Motor Control	3
CONE2212	Commercial Wiring	3
CONE2214	Industrial Wiring	2
CONE2216	Motor Control Application	3
CONE2225	Transformers	2
CONE2248	Code Applications	2
CPTR1100	Fund Computer Concepts	1
OR		
CPTR1104	Intro to Computer Tech	3
GSMS1000	Technical Mathematics	3
GSMS1110	First Aid / CPR	1
GSWS1102	Contemporary Career Search	1
	General Studies Elective	3
	Technical Electives	5

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Construction Electricity

Industrial Maintenance Emphasis - Diploma 72 Credits

Wadena

The Construction Electricity diploma is a dual-track program which provides students with 2,000 hours towards their Minnesota "A" Journeyman while providing students the training necessary to be successful as industrial electricians. Along with the Construction Electrician courses, students study hydraulics and pneumatics, industrial motor maintenance, advanced PLCs and advanced electronics. These courses provide students with a mix of theory and hands-on lab. This comprehensive program includes reading schematics and installing hydraulic/pneumatic systems, PLCs and industrial AC/DC drives. Students will get hands-on experience tearing down large industrial AC and DC motors, testing motor windings, proper bearing installation and maintenance, motor alignment and predictive maintenance techniques such as vibration analysis, infrared thermography and failure analysis.

Course #	Course Title	Crds
Required		
BLDG1102	Construction Safety	1
CONE1102	Intro Elec Circuit Theory	4
CONE1104	Intro to NEC	2
CONE1108	Electrical Circuit Theory	4
CONE1110	AC/DC Motors/Generators	4
CONE1114	National Electrical Code	2
CONE1116	Conduit/Tool Applications	2
CONE1120	Electrical Blueprints	3
CONE1122	Intro to Materials	1
CONE1124	Intro Elec Blueprint Read	2
CONE2202	Heating/Cooling Controls	3
CONE2205	Intro Commercial Wiring	3
CONE2206	Intro Motor Control Applic	3
CONE2208	Prog Logic Controllers	2
CONE2211	Electronic Motor Control	3
CONE2212	Commercial Wiring	3
CONE2214	Industrial Wiring	2
CONE2216	Motor Control Application	3
CONE2222	Adv Prog Logic Controllers	3
CONE2225	Transformers	2
CONE2228	Troubleshooting	1
CONE2234	Hydraulics/Pneumatics	2
CONE2236	Industrial Motor Maintenance	2
CONE2247	Advanced Electronics	3
CPTR1104	Intro to Computer Tech	3
GSCI1108	Info Retrieval - 21st Century	1
GSMS1000	Technical Mathematics	3
GSMS1110	First Aid / CPR	1
GSWS1102	Contemporary Career Search	1
	Technical Electives	3

Construction Management

AAS 72 Credits

Moorhead

Construction and related activities comprise the largest segment of our Gross National Product. The construction industry makes an important contribution to society and represents progress and the future.

This AAS program represents a combination of skills in construction, architecture, business and management areas. The skills learned in these areas can enable a graduate to pursue a variety of construction careers in safety, supervision, management, estimating, inspection or testing.

Course #	Course Title	Crds
Required		
BIOL1107	Env Science Issues	3
BLDG1114	Blueprint Reading I	2
CADD1102	Fundamentals of CADD	4
CONM1102	Site/Building Layout	2
CONM1108	Principles of Estimating	4
CONM1124	Building Systems	3
CONM2204	Materials Testing	3
CONM2206	Building Codes	2
CONM2208	Construction Bidding	2
CONM2210	Construction Scheduling	3
CONM2212	Site Management	3
CONM2214	Safety Management	3
CONM2216	Computer Estimating	2
CONM2222	Construction Mgmt Internship	2
CPTR1104	Intro to Computer Tech	3
ENGL1101	College Writing I	3
ENGR1100	Project Management	1
ENGR1118	Engineering Applications	3
ENGR1126	Engineering Graphics	3
PSCI1130	State and Local Government	3
	MN Transfer Elective	12
	Technical Electives	6

Correctional Officer

Certificate 28 Credits

Moorhead

Students interested in a criminal justice career other than law enforcement may enroll in the Correctional Officer Certificate program. The 29-credit certificate program is designed to:
1) Provide pre-employment education for the student who desires a position as a correctional officer.
2) Provide in-service education for employed correctional officers.
3) Facilitate articulation into the two-year Criminal Justice AS degree for peace officer licensing.

Course #	Course Title	Crds
Required		
ACCT1012	Prin of Bookkeeping	3
CPTR1100	Fund Computer Concepts	1
CRJU1101	Intro to Criminal Justice	3
CRJU1108	Physical Control Tactics/Corr	3
CRJU1109	Law Enforce/Behave Sci	3
CRJU2201	Criminal Law	3
CRJU2206	Police Report Writing	3
GSCO1102	Applied Communications	3
HLTH2214	Emergency Responder	3
SOC2216	Minority Group Relations	3

Cosmetology

Diploma 58 Credits

Wadena

Cosmetology is the art and the science as well as the business of beauty care and thus offers students a variety of career opportunities. Students completing the program can choose to be general cosmetologists or to excel in their area of expertise such as perming and cutting, hair care and coloring, or skin and nail care.

This program welcomes both men and women. Students of the Cosmetology program will receive a combination of classroom and laboratory work with the opportunity to practice their skills on mannequins and customers who come to the campus clinic/salon. Acquired cosmetology hours or credits earned and documented from other licensed colleges, whether in- or out-of-state, may be accepted upon approval of the Minnesota Board of Barbering and Cosmetologists. Graduates holding a valid cosmetology license are also eligible for employment on tourist ships and in other unique employment settings. Academically, courses in biology, chemistry, English, math and business are necessary in preparing for a career in Cosmetology.

The Board of Barbering and Cosmetologists, which is the cosmetology licensing body, requires 1550 hours of clinical time in order to become licensed in the State of Minnesota. Upon completion of 1550 hours and passing of the state exam, a license will be issued.

Course #	Course Title	Crds
Required		
COSM1103	Shampooing & Rinsing	2
COSM1105	Hairstyling	3
COSM1107	Haircutting	3
COSM1111	Properties of the Hair & Scalp	2
COSM1113	Chemical Texture Services	3
COSM1115	Braiding/Extensions/Wigs	2
COSM1121	Histology of the Skin	2
COSM1122	Clinic I	3
COSM1123	Facials/Make-Up/Hair Removal	3
COSM1124	Clinic II	3
COSM1125	Nail Structure & Growth	1
COSM1126	Clinic III	3
COSM1127	Hair Color	3
COSM1131	Manicuring/Pedicuring	2
COSM1133	Anatomy of the Head, Face & Neck	2
COSM1135	Advanced Nail Techniques	3
COSM1137	Principles of Hair Design	1
COSM1141	Chemistry/Electricity	2
COSM1143	Salon Business	2
COSM1145	Infection Control	2
COSM1147	MN Cosmetology Laws & Rules	2
COSM1149	Advanced Hair Design	1
COSM1155	Professional Image	1
CPTR1100	Fund Computer Concepts	1
ENTR1102	Start-Up Survival & Success	1
ENTR1104	Preparing Your Business Plan	1
ENTR1106	Sources of Funding	1
GSSI1104	Human Relations	3

Criminal Justice

AS 64 Credits

Moorhead

The Associate of Science degree in Criminal Justice prepares students for careers in law enforcement. M State's Criminal Justice Program has been designated a Professional Peace Officer Education Program by the Minnesota Board of Peace Officer Standards and Training. Students seeking a career in law enforcement will be prepared for and offered the opportunity to complete all educational and practical requirements necessary to apply for peace officer licensing.

The internship program provides students with comprehensive training to develop additional skills in critical thinking, communications and practical application.

Criminal Justice faculty have extensive academic and practical experience within the field.

Students seeking an AS degree in Criminal Justice are required to declare that intention prior to the second semester of coursework. Acceptance into the program is contingent on the student's:
* Completion of at least 12 credits of required general education courses.
* Achievement of a cumulative grade point average of 2.5 or higher.
* Successful completion of a personality assessment provided and evaluated through M State [approximate cost is $140].
* Completion of a criminal background check through the State of Minnesota or applicable state [approximate cost is $15].
* Achievement of at least a "C" in all Criminal Justice classes.
* Completion of required initial advising session with the program coordinator.
* Note that expenses listed in brackets above are not eligible for financial aid.

If there are more applicants who meet the above criteria than the program can accommodate, applicants will be selected based on program application date. Registration to some Criminal Justice courses is restricted to AS degree students unless approved by the program coordinator.

Course #	Course Title	Crds
Required		
CRJU1101	Intro to Criminal Justice	3
CRJU1102	Policing & Practices	3
CRJU1104	Juvenile Justice & Delinq	3
CRJU1109	Law Enforce/Behave Sci	3
CRJU2201	Criminal Law	3
CRJU2202	Criminal Procedures	3
CRJU2206	Police Report Writing	3
CRJU2208	Criminal Investigations	4
ENGL1101	College Writing I	3
ENGL1102	College Writing II	3

HLTH2214	Emergency Responder	3
SPCH1150	Interpersonal Comm	3
	Criminal Justice Electives	6
	MN Transfer Elective	21

Culinary Arts

Diploma 64 Credits

Moorhead

The mission of the Culinary Arts program is to provide quality education to students who wish to pursue a career of excellence in culinary and hospitality occupations. The program is designed to meet the current and future needs of the food service industry, where the demand for employment is high and which accounts for mor ethan 9 million jobs annually in the United States. Students enrolled in the Culinary Arts program receive "hands-on" practical lab training paired with traditional academic culinary courses that are aligned with industry needs. The program provides traditional academic culinary courses that are aligned with industry needs. The program provides a broad base of education in the culinary field.

Course #	Course Title	Crds
Required		
CULN1102	Intro to Foodservice Prep	4
CULN1104	Soups, Stocks & Sauces	2
CULN1106	Salad & Baking Lab	6
CULN1112	Poultry & Seafood	3
CULN1118	Fry & Broiler Lab	5
CULN1120	Kitchen Math & Formulas	1
CULN1122	Sanitation Certification	1
CULN1124	Menu Planning/Merchandising	2
CULN2202	Meats	2
CULN2204	Breakfast Preparation Lab	5
CULN2206	Buffet & Garde Manger Lab	3
CULN2214	Quantity Food Prep & Butcher Lab	6
CULN2222	Prod & Planning Supervision Lab	6
CULN2228	Food Cost Control	3
	General Studies Elective	9
	Technical Electives	6

Dental Assisting

AAS 65 Credits

Moorhead

The Dental Assisting program provides the knowledge necessary for the dental assistant to assist in performing general clinical assisting and support functions, intraoral clinical procedures, business office procedures and laboratory tasks. The curriculum includes content in general studies; biomedical, dental and clinical sciences; clinical practice; and additional intraoral clinical functions. Certain biomedical and dental science courses offered in the curriculum are common to both Dental Assisting and Dental Hygiene majors. Graduates are eligible to write the Dental Assisting National Board Certification Exam and the Minnesota State Board of Dentistry Registration Exam.

Individuals entering the program must complete a background check required by the Minnesota Human Services licensing division and commence the Hepatitis B vaccination series. Individuals who do not receive a clear background check may participate in the program but cannot participate in the clinical and/or field experience courses which are required for graduation.

PLEASE NOTE: The following required courses must be taken PRIOR TO enrolling in the core Dental Assisting courses: BIOL2202, CPTR1100, DENT1102 and ENGL1101.

Dental Assisting Program minimum admission requirements:
1. Academic transcript with a minimum 2.5 GPA. If applicant has completed 12 or more college credits, admission will be determined based on college transcript. If applicant has not completed 12 or more college credits, admission will be determined based on high school transcript* or GED**.

*If applicant is currently in the process of completing high school, a final transcript must be submitted prior to July that reflects the minimum 2.5 GPA at the time of graduation. A final transcript that reports a GPA below 2.5 will result in removal from the program. Failure to submit a transcript may result in the same.

**GED completion transcript with a minimum average of 500 (50 on older tests) on each of the five tested areas.

AND

2a. Completion of all developmental coursework based on assessment results prior to acceptance into the Dental Assisting program. Students must earn a "C" or better in all developmental coursework to be eligible for acceptance to the program.
Developmental Courses:
DVCM 0006 Comprehension Building
ENGL 0050 Writing Fundamentals
MATH 0052 Developmental Math

OR

2b. Accuplacer assessment scores as follows (or be eligible for an assessment waiver):
Arithmetic = 57
Reading = 77.5
Writing = 77.5

Course #	Course Title	Crds
Prerequisites		
GSMS1110	First Aid / CPR	1
MATH0090	Introductory Algebra	3
Pre-Assisting		
BIOL2202	Principles Nutrition	3
BIOL2230	Human Anatomy & Phys I	3
BIOL2232	Human Anatomy & Phys II	3
BIOL2257	Medical Microbiology	3
CHEM1100	Fund Concepts Chemistry	3
CPTR1100	Fund Computer Concepts	1
DENT1100	Biomaterials	3
ENGL1101	College Writing I	3
PSYC1200	General Psychology	3
Required		
DENT1102	Dental Anatomy Lecture	2
DENT1106	Dental Radiology Lecture	3
DENT1108	Dental Radiology Lab	2
DENT1122	Dental Ethics & Jurisprudence	1
DNAS1102	Clinical Assisting I	6
DNAS1104	Clinical Assisting II	3
DNAS1106	Biodental Science	3
DNAS1110	Clinical Assisting Specialties	4
DNAS1114	Dental Prac Management	2
DNAS1118	Advanced Functions	7
DNAS1140	Clinical Affiliation	7

Dental Assisting

Diploma 50 Credits

Moorhead

The Dental Assisting program provides knowledge necessary for the dental assistant to assist in performing general clinical assisting and support functions, intraoral clinical procedures, business office procedures and laboratory tasks. The curriculum includes content in general studies; biomedical, dental and clinical sciences; clinical practice; and additional intraoral clinical functions. Certain biomedical and dental science courses offered in the curriculum are common to both Dental Assisting and Dental Hygiene majors. Graduates are eligible to write the Dental Assisting National Board Certification Exam and the Minnesota State Board of Dentistry Registration Exam.

Individuals entering the program must complete a background check required by the Minnesota Human Services licensing division and commence the Hepatitis B vaccination series. Individuals who do not receive a clear background check may participate in the program but cannot participate in the clinical and/or field experience courses which are required for graduation.

PLEASE NOTE: The following required courses must be taken PRIOR TO enrolling in the core Dental Assisting courses: BIOL2202, CPTR1100, DENT1102 and ENGL1101.

Dental Assisting Program minimum admission requirements:
1. Academic transcript with a minimum 2.5 GPA. If applicant has completed 12 or more college credits, admission will be determined based on college transcript. If applicant has not completed 12 or more college credits, admission will be determined based on high school transcript* or GED**.

*If applicant is currently in the process of completing high school, a final transcript must be submitted prior to July that reflects the minimum 2.5 GPA at the time of graduation. A final transcript that reports a GPA below 2.5 will result in removal from the program. Failure to submit a transcript may result in the same.

**GED completion transcript with a minimum average of 500 (50 on older tests) on each of the five tested areas.

AND

2a. Completion of all developmental coursework based on assessment results prior to acceptance into the Dental Assisting program. Students must earn a C or better in all developmental coursework to be eligible for acceptance to the program.
Developmental Courses:
DVCM 0006 Comprehension Building
ENGL 0050 Writing Fundamentals
MATH 0052 Developmental Math

OR
2b. Accuplacer assessment scores as follows (or be eligible for an assessment waiver):
Arithmetic = 57
Reading = 77.5
Writing = 77.5

Course #	Course Title	Crds
Prerequisites		
GSMS1110	First Aid / CPR	1
Pre-Assisting Courses		
BIOL2202	Principles Nutrition	3
CPTR1100	Fund Computer Concepts	1
DENT1102	Dental Anatomy Lecture	2
DNHY1103	Intro for Dental Hlth Care Providers	2
ENGL1101	College Writing I	3
Required		
DENT1100	Biomaterials	3
DENT1104	Dental Health Care Providers II	1
DENT1106	Dental Radiology Lecture	3
DENT1108	Dental Radiology Lab	2
DENT1122	Dental Ethics & Jurisprudence	1
DNAS1103	Clinical Assisting I	4
DNAS1105	Clincial Assisting II	5
DNAS1106	Biodental Science	3
DNAS1114	Dental Prac Management	2
DNAS1119	Advanced Functions	5
DNAS1215	Dental Specialties	1

Dental Hygiene

AAS 88 Credits

Moorhead

The Dental Hygiene program provides the knowledge and skills necessary for the dental hygienist to work with a dentist and to provide direct patient care to patients. The services dental hygienists provide vary somewhat from state to state. Routine functions include scaling, peridontal therapy and polishing teeth; applying preventive and other topical agents to the teeth; taking and processing x-rays; assessing the patient's health and the health of the supporting structures of the teeth; providing patient education; providing pain control measures such as local anesthetic and conscious nitrous oxide sedation; and providing dental health education in the community. The curriculum includes content in general education; bio-medical, dental, dental hygiene and clinical sciences; and clinical practice. Graduates are eligible to write the National Board and take the Central Regional Dental Testing Service, Inc. exam.

Application to the Dental Hygiene Program must be completed before March 1 of the year in which a student wishes to attend the Dental Hygiene program. The selection of students is done on a point system using the Dental Hygiene Application Assessment Sheet to rank applicants.

If accepted into the program, the student must complete and pass an annual background check required by the Minnesota Human Services licensing division, complete the Hepatitis B series, and be certified in first aid and CPR and current in immunizations.

Course #	Course Title	Crds
Prerequisites		
MATH0090	Introductory Algebra	3
Pre-Hygiene Courses		
BIOL2202	Principles Nutrition	3
BIOL2230	Human Anatomy & Phys I	3
BIOL2232	Human Anatomy & Phys II	3
BIOL2257	Medical Microbiology	3
CHEM1100	Fund Concepts Chemistry	3
DENT1102	Dental Anatomy Lecture	2
ENGL1101	College Writing I	3
PSYC1200	General Psychology	3
SOC1111	Intro to Sociology	3
Required		
DNHY1100	Biomaterials	3
DNHY1103	Intro for Dental Hlth Care Providers	2
DNHY1104	Dental Anatomy Lab	1
DNHY1105	Dental Health Care Providers II	1
DNHY1106	Head and Neck Anatomy	2
DNHY1107	Dental Radiology Lecture	3
DNHY1108	Oral Histology & Embryology	2
DNHY1109	Dental Radiology Lab	2
DNHY1110	Dent Hygiene Prin I	2
DNHY1112	Dent Hygiene Prac I	3
DNHY1118	Oral Pathology	2
DNHY1119	Dent Hygiene Prin II	4
DNHY1122	Dental Ethics & Jurisprudence	1
DNHY1123	Dent Hygiene Prac II	5
DNHY1124	Pain Control Lab	2
DNHY1130	Dent Hygiene Prin III	1
DNHY1132	Dent Hygiene Prac III	1
DNHY1136	Dental Pharmacology	2
DNHY2210	Dent Hygiene Prin IV	2
DNHY2213	Dent Hygiene Prac IV	6
DNHY2219	Periodontology	2
DNHY2220	Dent Hygiene Prin V	1
DNHY2223	Dent Hygiene Prac V	6
DNHY2226	Community Dental Hygiene	4
DNHY2240	Clinical Affiliation I	1
DNHY2246	Clinical Affiliation II	1

Diesel Equipment Technology

(Case IH & New Holland Sponsored) - AAS 79 Credits

Moorhead

The Case IH or New Holland diesel equipment technician works in an exciting and rapidly changing industry. Students in this partnership program receive an education in diesel and heavy equipment technology.

Sponsorship: Case IH & New Holland Forging the Future Partnership

Sponsorship is granted on interviews, standardized tests and admission to M State. Students who are accepted into the sponsored program may qualify to receive the following:
*Partial reimbursement for tuition and tools.
*Employment with Case IH or New Holland during the academic year.
*Employment during the summer after the first year.
*Uniforms for work and school.

To learn more about the Case IH & New Holland Forging the Future Partnership program, contact your local Case IH or New Holland dealership. For additional information about Case IH & New Holland, go to http://www.cnh.com. This Forging the Future Partnership program, located in Moorhead, Minn., is the first Case IH & New Holland corporate-supported college program in the nation.

Students entering the Forging the Future Partnership should have good mechanical aptitude, good communications skills and the ability to comprehend service literature. The program prepares individuals to diagnose and repair components. This includes such items as diesel engines, transmissions, drive lines, differentials, hydraulic systems, electrical systems, and electronically-controlled fuel systems and transmissions, and involves instruction in the use of a wide variety of tools and diagnostic testing equipment. Students are prepared for careers that require them to inspect, diagnose, repair and maintain Case IH or New Holland agricultural and construction equipment. Instruction includes diagnosing, disassembling, repairing and adjusting systems and parts, including brakes, starting and charging system components, suspension, fuel systems, differential, electronic fuel control, clutch and transmissions, air conditioning and refrigeration. The Case IH & New Holland partnership also requires students to perform supervised occupational work experiences at sponsoring Case IH or New Holland dealerships, which provides on-the-job work experience. Each supervised occupational work experience is 7-8 weeks in length.

Course #	Course Title	Crds
Required		
BIOL1107	Env Science Issues	3
CPTR1104	Intro to Computer Tech	3
DCNH1116	CNH SOE I	3
DCNH1118	CNH SOE II	7
DCNH2210	Mobile Hydraulics	4
DCNH2218	CNH SOE III	3
DCNH2230	Adv Engines & Fuel Systems I	3
DCNH2232	Adv Engines & Fuel Systems II	3
DCNH2238	Transmissions & Drive Systems	4
DSET1100	Diesel Equipment Fundamentals	2
DSET1106	Fuel Systems	2
DSET1110	Power Train I	3
DSET1112	Hydraulics I	4
DSET1124	Diesel Shop Management	1
DSET1130	Trans Elec/Start/Charge	4
DSET1132	Intro to Engine Theory	2
DSET1134	Intro to Engines	3
DSET1144	Electrical Troubleshooting	3
DSET2204	Adv Electrical Systems	3
DSET2206	Electronic Controls	3
ECON1150	Essentials of Economics	3
ENGL1101	College Writing I	3
GSWS1102	Contemporary Career Search	1
SOC1111	Intro to Sociology	3
SPCH1114	Intro to Public Speaking	3
TRNS1112	Heating Ventilation A/C	3

Diesel Equipment Technology
(General) - AAS 79 Credits
Moorhead

The diesel equipment technician works in an exciting and rapidly changing industry. Students in this program receive the diagnostic and service training needed to be successful in their chosen field.

Students entering should have good mechanical aptitude, good communication skills and the ability to comprehend service literature. The program prepares individuals to diagnose and repair all components. This includes such items as diesel engines, transmissions, drive lines, differentials, hydraulic and air brake systems, electrical systems and electronically controlled fuel systems and transmissions, and involves instruction in the use of a wide variety of tools and diagnostic testing equipment. Students are prepared for careers requiring them to inspect, diagnose, repair and maintain trucks, trailers, farming equipment, diesel and construction equipment, stationary diesel engines in electrical generators and related equipment. Instruction includes diagnosing, disassembling, repairing and adjusting systems and parts, vehicle service, air brake systems, brakes, starting and suspension systems, wheel alignment, fuel systems, differentials, electronic fuel control, clutch and transmissions, air conditioning and refrigeration. About two-thirds of the instruction time is spent in the diesel lab working on live work and training models. Students learn to diagnose problems and disassemble, recondition and replace faulty parts, and get hands-on training on such components as electrical, transmissions, air conditioning, brakes, fuel systems hydraulics and engines. This program is an Association of Diesel Specialists TechSmart program participant.

Course #	Course Title	Crds
Required		
BIOL1107	Env Science Issues	3
CPTR1104	Intro to Computer Tech	3
DSET1100	Diesel Equipment Fundamentals	2
DSET1106	Fuel Systems	2
DSET1110	Power Train I	3
DSET1112	Hydraulics I	4
DSET1114	Vehicle Brakes	3
DSET1124	Diesel Shop Management	1
DSET1130	Trans Elec/Start/Charge	4
DSET1132	Intro to Engine Theory	2
DSET1134	Intro to Engines	3
DSET1140	SOE I	7
DSET1144	Electrical Troubleshooting	3
DSET2204	Adv Electrical Systems	3
DSET2206	Electronic Controls	3
DSET2210	Mobile Hydraulics	4
DSET2230	Adv Engines & Fuel Systems I	3
DSET2232	Adv Engines & Fuel Systems II	3
DSET2238	Transmissions & Drive Systems	4
DSET2240	SOE II	3
ECON1150	Essentials of Economics	3
ENGL1101	College Writing I	3
GSWS1102	Contemporary Career Search	1
SOC1111	Intro to Sociology	3
SPCH1114	Intro to Public Speaking	3
TRNS1112	Heating Ventilation A/C	3

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Diesel Equipment Technology
(General) - Diploma 65 Credits
Moorhead

The Diesel equipment technician works in an exciting and rapidly changing industry. Students in this program receive the diagnostic and service training needed to be successful in their chosen field.

Students entering should have good mechanical aptitude, good communication skills and the ability to comprehend service literature. The program prepares individuals to diagnose and repair all components. This includes such items as diesel engines, transmissions, drive lines, differentials, hydraulic and air brake systems, electrical systems, electronically controlled fuel systems and transmissions, and involves instruction in the use of a wide variety of tools and diagnostic testing equipment. Students are prepared for careers requiring them to inspect, diagnose, repair, and maintain trucks, trailers, farming equipment, diesel and construction equipment, stationary diesel engines in electrical generators, and related equipment. Instruction includes diagnosing, disassembling, repairing and adjusting systems and parts, vehicle service, air brake systems, brakes, starting and suspension systems, wheel alignment, fuel systems, differentials, electronic fuel control, clutch and transmissions, air conditioning, and refrigeration. About two-thirds of the instruction time is spent in the diesel lab working on live work and training models. Students learn to diagnose problems and disassemble, recondition and replace faulty parts, and get hands-on training on such components as electrical, transmissions, air conditioning, brakes, fuel systems hydraulics, and engines. This program is an Association of Diesel Specialists TechSmart program participant.

Course #	Course Title	Crds
Required		
CPTR1104	Intro to Computer Tech	3
DSET1100	Diesel Equipment Fundamentals	2
DSET1106	Fuel Systems	2
DSET1110	Power Train I	3
DSET1112	Hydraulics I	4
DSET1114	Vehicle Brakes	3
DSET1130	Trans Elec/Start/Charge	4
DSET1132	Intro to Engine Theory	2
DSET1134	Intro to Engines	3
DSET1144	Electrical Troubleshooting	3
DSET2204	Adv Electrical Systems	3
DSET2206	Electronic Controls	3
DSET2210	Mobile Hydraulics	4
DSET2220	Internship	3
DSET2230	Adv Engines & Fuel Systems I	3
DSET2232	Adv Engines & Fuel Systems II	3
DSET2238	Transmissions & Drive Systems	4
ENGL1101	College Writing I	3
GSSI1104	Human Relations	3
GSWS1102	Contemporary Career Search	1
TRNS1112	Heating Ventilation A/C	3
	Technical Electives	3

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Diesel Equipment Technology
(John Deere Sponsored) - AAS 79 Credits
Moorhead

John Deere Construction & Forestry Specialization
We can jump-start your career! The John Deere Construction & Forestry Technician (C & F Tech) program is a collaboration between John Deere, RDO Equipment Co., Nortrax, and Minnesota State Community & Technical College (MSCTC) to train future John Deere qualified service technicians.

The first year of this dynamic two-year program will be spent in classes designed to teach the operational concepts of diesel engines, power trains, brakes, electrical and hydraulic systems, and shop procedures and safety. The second year training coursework was designed by John Deere and concentrates on the specific John Deere product line, as well as engine tune-up and troubleshooting, crawler undercarriages, hydrostatic transmissions and failure analysis.

Along with technical expertise, students entering the John Deere partnership program should be eager to partner with John Deere customers to provide long-term service and support. Therefore another component of the John Deere C & F Tech program is the supervised occupational work experiences students perform at sponsoring John Deere dealerships. This 7-8 week opportunity provides invaluable on-the-job work experience.

Sponsorship: RDO Equipment Co. and Nortrax are the John Deere construction & forestry equipment dealers in ND, SD, MT, WI & MN. Dealer sponsorship is based on an application process which includes interviews, a standardized test and admission to MSCTC. Students accepted into the program qualify to receive:

*$8000 in tuition reimbursement.
*Paid part-time employment opportunities during the school year and full-time the summer after the first year.
* Uniforms for work and school.

To learn more about the John Deere C & F Tech sponsorship program, contact April Mitchell at RDO Equipment Co. at amitchell@rdoequipment.com or Darrell Stellingwerf at Nortrax at Darrell.Stellingwerf@nortrax.com. For additional information about the program, go to www.johndeere.com/tech.

Course #	Course Title	Crds
Required		
BIOL1107	Env Science Issues	3
CPTR1104	Intro to Computer Tech	3
DEER1116	John Deere SOE I	3
DEER1118	John Deere SOE II	7
DEER2210	Mobile Hydraulics	4
DEER2218	John Deere SOE III	3
DEER2230	Adv Engines & Fuel Systems I	3
DEER2232	Adv Engines & Fuel Systems II	3
DEER2238	Transmissions & Drive Systems	4
DSET1100	Diesel Equipment Fundamentals	2
DSET1106	Fuel Systems	2
DSET1110	Power Train I	3
DSET1112	Hydraulics I	4
DSET1124	Diesel Shop Management	1
DSET1130	Trans Elec/Start/Charge	4
DSET1132	Intro to Engine Theory	2
DSET1134	Intro to Engines	3
DSET1144	Electrical Troubleshooting	3
DSET2204	Adv Electrical Systems	3
DSET2206	Electronic Controls	3

ECON1150	Essentials of Economics	3
ENGL1101	College Writing I	3
GSWS1102	Contemporary Career Search	1
SOC1111	Intro to Sociology	3
SPCH1114	Intro to Public Speaking	3
TRNS1112	Heating Ventilation A/C	3

Diesel Equipment Technology
(Truck Option) - AAS 79 Credits

Moorhead

The Diesel Equipment Technician works in an exciting and rapidly changing industry. Students in this program receive the diagnostic and service training needed to be successful in their chosen field.
Students entering should have good mechanical aptitude, good communication skills and the ability to comprehend service literature. The program prepares individuals to diagnose and repair all components. This includes such items as diesel engines, transmissions, drive lines, differentials, hydraulic and air brake systems, electrical systems, electronically controlled fuel systems and transmissions, and involves instruction in the use of a wide variety of tools and diagnostic testing equipment. Students are prepared for careers requiring them to inspect, diagnose, repair, and maintain trucks, trailers, farming equipment, diesel and construction equipment, stationary diesel engines in electrical generators and related equipment. Instruction includes diagnosing, disassembling, repairing and adjusting systems and parts, vehicle service, air brake systems, brakes, starting and suspension systems, wheel alignment, fuel systems, differentials, electronic fuel control, clutch and transmissions, air conditioning and refrigeration. About two-thirds of the instruction time is spent in the diesel lab working on live work and training models. Students learn to diagnose problems and disassemble, recondition and replace faulty parts, and get hands-on training on such components as electrical, transmissions, air conditioning, brakes, fuel systems hydraulics and engines. This program is an Association of Diesel Specialists TechSmart program participant.

Course #	Course Title	Crds
Required		
BIOL1107	Env Science Issues	3
CPTR1104	Intro to Computer Tech	3
DSET1100	Diesel Equipment Fundamentals	2
DSET1106	Fuel Systems	2
DSET1110	Power Train I	3
DSET1112	Hydraulics I	4
DSET1114	Vehicle Brakes	3
DSET1124	Diesel Shop Management	1
DSET1130	Trans Elec/Start/Charge	4
DSET1132	Intro to Engine Theory	2
DSET1134	Intro to Engines	3
DSET1144	Electrical Troubleshooting	3
DSET2204	Adv Electrical Systems	3
DSET2206	Electronic Controls	3
DTRK1140	SOE I	7
DTRK2214	Suspension and Alignment	3
DTRK2230	Advanced Engines I	3
DTRK2232	Advanced Engines II	3
DTRK2238	Transmissions & Drive Systems	4
DTRK2240	SOE II	4
ECON1150	Essentials of Economics	3
ENGL1101	College Writing I	3
GSWS1102	Contemporary Career Search	1
SOC1111	Intro to Sociology	3
SPCH1114	Intro to Public Speaking	3
TRNS1112	Heating Ventilation A/C	3

Digital Photography and Imaging
Certificate 18 Credits

Moorhead

This program is intended for applicants with a strong interest in photography and image manipulation. Successful applicants will have a basic knowledge of photography and must demonstrate an understanding of imaging fundamentals. They will build a strong portfolio of photographic and illustrated images for a wide range of practical business applications and artistic and technical skills. Students will work primarily in the digital realm of photography and imaging.

Course #	Course Title	Crds
CPTR1102	Intro to MAC	3
GDTC1126	Digital Photography	3
GDTC2203	Electronic Image Manipulation	3
GDTC2240	Lighting Techniques	2
GDTC2244	Adv Electronic Imaging	3
GDTC2246	Advanced Photography & Imaging	4

Early Childhood & Paraprofessional Education
AS 64 Credits

Detroit Lakes • Corporate Credit

This program includes coursework in child development birth through age 8, behavior guidance, children with special needs, development of environments and curriculum for infant/toddler, preschool and primary school age children, the role of the paraprofessional and sign language, as well as on-site experiences in a variety of programs. Graduates will independently provide a healthy, safe and developmentally appropriate learning environment in support of families. Child development courses in combination with general education courses comprise the 64-credit degree program for students.

The program meets the educational requirements for assistant teacher and paraprofessional in an educational setting as well as assistant teacher and teacher in a child care setting and/or family child care provider, group family child care provider (based on program) as listed in Minnesota Department of Human Services Rules Number 9502 and 9503. Work experience, in addition to educational coursework, is required by Rule 3 for teacher positions in licensed child care facilities.

Individuals entering the program must complete a background check required by the Minnesota Department of Human Services licensing division. Individuals with any prior record of child maltreatment or crime of violence may participate in the program, but the student will not be allowed to participate in lab or field experience coursework.

Course #	Course Title	Crds
Required		
ANTH1100	Anthropology	3
ART1110	Intro to Art	3
CDEV1105	Development/Guidance	3
CDEV1107	Intro to Early Educ	3
CDEV2200	Integrating Play	3
CDEV2229	Imaginative Learning	3
CDEV2236	Occupational Experience	1
CDEV2238	Intg Children with Special Needs	3
CDEV2240	Observing & Assessing	3
CDEV2242	Infant/Toddler Program	3
CDEV2243	Infant/Toddler Lab	1
CDEV2244	Parent & Professional Relations	3
CDEV2246	Foundations in Literacy	3
CDEV2250	Sign Language	1
CDEV2252	Paraprofessional Role	1
CDEV2290	Internship	3
ENGL1101	College Writing I	3
ENGL1102	College Writing II	3
MCS2230	Multicultural America	3
PHIL1201	Ethics	3
PSCI1130	State and Local Government	3
PSYC1200	General Psychology	3
SOC1111	Intro to Sociology	3
SPCH1114	Intro to Public Speaking	3

Electrical Lineworker Technology
AAS 72 Credits

Wadena

The Electrical Line Worker program provides trained personnel for the power industry. Coursework provides both theory and practical hands-on experience in all phases of power line construction and maintenance. Coursework includes electrical math, national electrical safety codes, construction of overhead and underground distribution systems, conductor applications, over-voltage and over-current protection, guying and pole grounding. The 90-acre training field located near the campus provides a site for hands-on experience in pole setting. The successful graduate is eligible for employment in rural electric and municipal utilities or with private contractors.

Course #	Course Title	Crds
Required		
BIOL1107	Env Science Issues	3
CPTR1100	Fund Computer Concepts	1
ELTR1102	Circuit Analysis I	4
ELWT1102	Line Worker Theory I	4
ELWT1104	Electrical Structure Installation	5
ELWT1106	Climbing Electrical Structure	4
ELWT1108	Const of Overhead Structures	3
ELWT1110	Line Worker Theory II	4
ELWT1112	Transformers	2
ELWT1114	Line Construction Reports	2
ELWT1116	Pole Top/Bucket Rescue	1
ELWT1118	Field Construction I	3
ELWT1120	Field Construction II	3
OR		
ELWT1130	Electrical Line Worker Intern	2
ELWT1122	Field Construction III	3
ENGL1101	College Writing I	3

ENST2001	Fundamentals of Utilities	4
ENST2002	Energy Safety Principles	1
ENST2222	Blueprint Reading for Energy Ind	2
ENST2223	GPS Mapping	2
GSMS1110	First Aid / CPR	1
GSWS1102	Contemporary Career Search	1
MATH1020	Intermediate Algebra	3
OR		
MATH1114	College Algebra	4
PHYS1106	Fund of Physics - Mechanics	3
PSYC1101	Human Interaction	3
SUPL1118	Lead & Facilitate Teams	3
	MN Transfer Elective	3

Electrical Lineworker Technology

Diploma 36 Credits

Wadena

The Electrical Line Worker program provides trained personnel for the power industry. Coursework provides both theory and practical hands-on experience in all phases of power line construction and maintenance. Coursework includes electrical math, national electrical safety codes, construction of overhead and underground distribution systems, conductor applications, over-voltage and over-current protection, guying and pole grounding. The 90-acre training field located near the campus provides a site for hands-on experience in pole setting. The successful graduate is eligible for employment in rural electric and municipal utilities or with private contractors.

Course #	Course Title	Crds
Required		
CPTR1100	Fund Computer Concepts	1
ELWT1102	Line Worker Theory I	4
ELWT1104	Electrical Structure Installation	5
ELWT1106	Climbing Electrical Structure	4
ELWT1108	Const of Overhead Structures	3
ELWT1110	Line Worker Theory II	4
ELWT1112	Transformers	2
ELWT1114	Line Construction Reports	2
ELWT1116	Pole Top/Bucket Rescue	1
ELWT1118	Field Construction I	3
ELWT1120	Field Construction II	3
GSMS1110	First Aid / CPR	1
GSWS1102	Contemporary Career Search	1
	Technical Electives	2

Environmental Science

AS 60 Credits

Fergus Falls

The Associate of Science in Environmental Studies is designed to provide students an avenue to a four-year environmental studies degree, preparing them for a career in an environmental field. The AS in Environmental Studies emphasizes a broad background in natural sciences and mathematics, ensuring students are properly prepared for further study at an advanced level.

Course #	Course Title	Crds
Required		
BIOL1107	Env Science Issues	3
BIOL1108	Env Science Issues Lab	1
BIOL1111	General Biology I	4
BIOL1112	General Biology II	4
CHEM1111	General Inorganic Chemistry I	5
CHEM1112	General Inorganic Chemistry II	5
CSCI1101	Computer Essentials	1
ENGL1101	College Writing I	3
ENGL1102	College Writing II	3
MATH1114	College Algebra	4
MATH1115	Pre-Calculus	4
MATH1134	Analytical Geometry & Calculus I	5
MATH1213	Intro to Statistics	4
PHYS1401	College Physics I	4
SOC1113	Social Problems	3
	MN Transfer Elective	7

Equine Science

AAS 60 Credits

Fergus Falls

This program will build on the introductory skills gained from the Equine Science Diploma program at M State and Red Horse Ranch. Additional academic theory and general education transfer courses will be taken online while the student works at an approved Communicating for America Education Programs (CAEP) internship site. This degree and internship experience will give the student the finished skills necessary for careers in stable management, breeding, training, judging, riding instruction and related occupations.

Course #	Course Title	Crds
Required		
ACCT1012	Prin of Bookkeeping	3
CHEM1100	Fund Concepts Chemistry	3
CSCI1101	Computer Essentials	1
ENGL1101	College Writing I	3
EQSC1001	Introduction to Equine Science	1
EQSC1050	Equine Anatomy	3
EQSC1060	Equine Repro & Nutrition	3
EQSC1130	Stable Operations I	1
EQSC1131	Stable Operations II	2
EQSC1140	Western Horsemanship	3
EQSC1150	Fundamentals of Riding Instruction	2
EQSC1160	English Equitation	3
EQSC1170	Introduction to Horse Training	1
EQSC2100	Analysis & Interp of Equine Info	1
EQSC2200	Recog & Mgmt of Equine Disorders	3
EQSC2300	Applied Stable Operations	3
EQSC2500	Equine Internship	15
SOC2220	Food, Culture and Society	3
	MN Transfer Electives	6

Equine Science

Diploma 32 Credits

Fergus Falls

This program will provide a unique blend of transferrable college credit courses along with specific academic and hands-on equine courses. This diploma will give students the introductory skills necessary for careers in stable management, horse training, horse judging, riding instruction or other related occupations. In addition, this program can serve as a starting point to a bachelor degree program in equine science, a pre-veterinary program or a pre-veterinary technology program. Students in this program may also wish to use it as a foundation for a lifelong equine learning experience as a horse owner/rider.

Courses are taught at the M State campus and at Red Horse Ranch Arena, a world-class training/boarding/events facility located along the Otter Tail River near Fergus Falls. Students will have the opportunity to learn and practice their skills at a busy, private equine business facility. This gives M State students a unique advantage when entering the job market because they will possess a diploma that reflects a perfect combination of academic learning and real-life application. For more on Red Horse Ranch, visit http://www.redhorserancharena.com/.

Course #	Course Title	Crds
Required		
ACCT1012	Prin of Bookkeeping	3
CHEM1100	Fund Concepts Chemistry	3
CSCI1101	Computer Essentials	1
ENGL1101	College Writing I	3
EQSC1001	Introduction to Equine Science	1
EQSC1050	Equine Anatomy	3
EQSC1060	Equine Repro & Nutrition	3
EQSC1130	Stable Operations I	1
EQSC1131	Stable Operations II	2
EQSC1140	Western Horsemanship	3
EQSC1150	Fundamentals of Riding Instruction	2
EQSC1160	English Equitation	3
EQSC1170	Introduction to Horse Training	1
SOC2220	Food, Culture and Society	3

Esthetist

Certificate 24 Credits

Wadena

Esthetics is the non-medical treatment of the skin, its disorders and function. Instruction includes the sciences of anatomy, dermatology and chemistry as related to skin care; electricity light therapy; sanitation and safety procedures; Minnesota statutes and laws which pertain to the regulation of the practice of skin care; and elementary service skills. The Board of Barbering and Cosmetologists, which is the cosmetology licensing body, requires 600 hours of clinical time in order to become licensed in the State of Minnesota. Upon completion of 600 hours and passing of the state exam, a license will be issued.

Course #	Course Title	Crds
Required		
COSM1121	Histology of the Skin	2
COSM1123	Facials/Make-Up/Hair Removal	3
COSM1124	Clinic II	3
COSM1126	Clinic III	3
COSM1133	Anatomy of the Head, Face & Neck	2
COSM1143	Salon Business	2
COSM1147	MN Cosmetology Laws & Rules	2
CPTR1100	Fund Computer Concepts	1
ENTR1102	Start-Up Survival & Success	1
ENTR1104	Preparing Your Business Plan	1
ENTR1106	Sources of Funding	1
ESTH1808	Advanced Skin Treatments	3

Financial & Credit Services Administration

AAS 60 Credits

Moorhead

This program prepares individuals with the skills needed to support credit, lending and selling functions in financial institutions, trade and service credit, and collection agencies. Prospective students should be interested in working with numbers and details and should have a genuine desire to assist other people with credit services.

Course #	Course Title	Crds
Required		
ACCT1108	Business Math/Calculators	3
ACCT1120	Business Law	3
ACCT2201	Financial Accounting I Lab	1
ACCT2211	Financial Accounting I	3
ADMS1116	Business Communications I	3
CPTR1104	Intro to Computer Tech	3
ECON2210	Macroeconomics	3
ENGL1101	College Writing I	3
FNCS1111	Intro to Financial Services	3
FNCS1114	Consumer Lending	3
FNCS1118	Personal Finance Prod/Cust Srvc	3
FNCS1122	Teller Applications	3
FNCS1126	Credit Counseling & Collections	2
FNCS2110	Trends in Financial Services	3
FNCS2210	Financial Statement Analysis	3
FNCS2220	Real Estate Lending	3
MKTG1110	Customer Service	3
PHIL1201	Ethics	3
SPCH1114	Intro to Public Speaking	3
	MN Transfer Elective	3
	Technical Electives	3

Fire Department Company Officer

Certificate 22 Credits

eCampus

The Fire Department Company Officer Program is designed for individuals who have a minimum of two years experience as fire service personnel. The program prepares individuals for the role of company officer, the individual who organizes, coordinates and controls a fire response team. The Fire Company Officer Program presents critical subject matter to students who, upon completion of the certificate, would be prepared to serve as a fire department supervisor. Program graduates receive a Fire Company Officer certificate of credit. The program meets qualification standards for state certification in the state in which the student resides.

Course #	Course Title	Crds
Required		
ENGL1101	College Writing I	3
FIRE1180	Bldg Construction for Fire Protect	3
FIRE2020	Fire & Emergency Services Adm	3
FIRE2030	Fire Instructor I	2
FIRE2040	Fire Protection Systems	3
FIRE2050	Fire Prevention	3
FIRE2060	Strategy and Tactics	2
FIRE2080	Fire Service Leadership & Mgmt	3

Fire Service Preparation

Certificate 19 Credits

Moorhead

This certificate program provides an opportunity for individuals to obtain basic instruction in firefighting, rescue and emergency medical care. The program is designed to meet the minimum entry-level requirements for most fire departments around the country. This certificate consists mostly of technical coursework with only three credits of general studies, providing for a focus of technical hands-on training to enable the student to become familiar with the entry-level aspects of fire service. Other admissions criteria may apply.

Course #	Course Title	Crds
Prerequisites		
ENGL0050	Writing Fundamentals	3
DVCM0006	Comprehension Building	3
Required		
CPTR1100	Fund Computer Concepts	1
EMTB1100	Emergency Med Tech Basic	6
FIRE1100	Intro to Fire Service	2
FIRE1106	Firefighter I & II	3
FIRE1108	Firefighter I & II Skills	4
FIRE1150	HazMat Operational	3

Graphic Design Technology

AAS 60 Credits

Moorhead

Graphic Design Technology is a highly competitive and rewarding career for those with a talent and/or interest in the graphic arts. Graphic Design Technology does not focus on the fine arts of painting and art history, rather on the integration of technology with graphic design to train students to create communication materials (stationery, brochures, annual reports, newspaper layout, etc.) for print production.

Within two years of training, individuals develop creatively and technically as they learn skills in photography, illustration, design and pre-press production Students become task-oriented by learning to meet deadlines, problem solve and work efficiently. Our graduates are expected to be self-motivated and apply the skills they learn in the classroom outside of instruction time to strengthen their abilities. The Graphic Design Technology program prepares students for entry-level positions in the graphic design technology industry.

Students work on their own Macintosh laptop to complete coursework, so there is never a need to wait for an available computer. Owning individual laptops also allows each student to be mobile and work from anywhere at any time. Students will begin with foundation-level work that includes learning about Macintosh technology, basic drawing, print process theories, technical computer illustration and basic design theories. They progress to higher levels of design theory and application, advanced illustration, photo manipulation using image editing software and page layout skills in a page layout computer application. Class curriculums consist of lectures, demonstrations, hands-on application, industry tours and lab work.

We also guide our graduates in how to behave and work as a professional in the industry. Instructors teach from real-world experience and, as a result, students are prepared to produce industry-level design work that meets technical criteria for print production, as well as integrate professional expectations of meeting deadlines and being organized. The final result of a student's study is a comprehensive portfolio that showcases the student's technical and design skills. With the students' skills and comprehensive portfolios, the job market is open to receiving them as efficient graphic design technology employees.

Course #	Course Title	Crds
Required		
CPTR1102	Intro to MAC	3
ENGL1101	College Writing I	3
GDTC1113	Design & Layout I	3
GDTC1115	Design & Layout II	3
GDTC1126	Digital Photography	3
GDTC1134	Electronic Drawing I	3
GDTC1144	Electronic Drawing II	3
GDTC1150	Process Printing Theory	3
GDTC2203	Electronic Image Manipulation	3
GDTC2212	Design & Layout III	3
GDTC2214	Integrated Graphic Design	3
GDTC2242	Electronic Publishing	3
GDTC2244	Adv Electronic Imaging	3
GDTC2258	Graphic Dsgn Prof Prac	3
GDTC2276	Graphic Dsgn Internship	3
GDTC2278	Digital Preflight	3
SPCH1114	Intro to Public Speaking	3
	Critical Thinking Elective Goal 2	3
	Humanities/Fine Arts Goal 6	3
	MN Transfer Elective	3

Graphic Design Technology

Diploma 30 Credits

Moorhead

Graphic Design Technology is a highly competitive and rewarding career for those with a talent and/or interest in the graphic arts. Graphic design technology does not focus on the fine arts of painting and art history, rather on the integration of technology with graphic design to train students to create communication materials (stationery, brochures, annual reports, newspaper layout, etc.) for print production.

Within two years of training, individuals develop creatively and technically as they learn skills in photography, illustration, design and pre-press production Students become task-oriented by learning to meet deadlines, problem solve and work efficiently. Our graduates are expected to be self-motivated and apply the skills they learn in the classroom outside of instruction time to strengthen their abilities. The Graphic Design Technology program prepares students for entry-level positions in the graphic design technology industry.

Students work on their own Macintosh laptop to complete coursework, so there is never a need to wait for an available computer. Owning individual laptops also allows each student to be mobile and work from anywhere at any time. Students will begin with foundation-level work that includes learning about Macintosh technology, basic drawing, print process theories, technical computer illustration and basic design theories. They progress to higher levels of design theory and application, advanced illustration, photo manipulation using image editing software and page layout skills in a page layout computer application. Class curriculums consist of lectures, demonstrations, hands-on application, industry tours and lab work.

We also guide our graduates in how to behave and work as a professional in the industry. Instructors teach from real-world experience and, as a result, students are prepared to produce industry-level design work that meets technical criteria for print production, as well as integrate professional expectations of meeting deadlines and being organized. The final result of a student's study is a comprehensive portfolio that showcases the student's technical and design skills. With the students' skills and comprehensive portfolios, the job market is open to receiving them as efficient graphic design technology employees.

Course #	Course Title	Crds
Required		
GDTC1113	Design & Layout I	3
GDTC1115	Design & Layout II	3
GDTC1126	Digital Photography	3
GDTC1134	Electronic Drawing I	3
GDTC1144	Electronic Drawing II	3
GDTC1150	Process Printing Theory	3
GDTC2203	Electronic Image Manipulation	3
GDTC2212	Design & Layout III	3
GDTC2242	Electronic Publishing	3
GDTC2258	Graphic Dsgn Prof Prac	3

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Health Information Technology

AAS 64 Credits

eCampus

The health information technician is an important member of the healthcare team, who secures, analyzes, integrates and manages health information for patient care, reimbursement, planning, marketing, legal aspects and research. This information steers the healthcare industry. The program is designed to combine general education courses with technical courses for a well-rounded and functional education. To further the student's classroom coursework with practical hands-on experience, time is spent in healthcare facilities.

Individuals entering the program must complete a background check required by the Minnesota Human Services licensing division. Individuals who do not receive a clear background check may participate in the program but may not be allowed to participate in clinical and/or field experience courses.

Course #	Course Title	Crds
ADMM1140	Medical Language Applications	3
BIOL2230	Human Anatomy & Phys I	3
BIOL2232	Human Anatomy & Phys II	3
CPTR1104	Intro to Computer Tech	3
ENGL1101	College Writing I	3
HITM1150	Intro Health Info Science	3
HITM1152	Health Information Systems	3
HITM1155	Medicolegal Aspects	3
HITM1159	Clinical Affiliation I	2
HITM2202	Cmptr Applic in Healthcare	3
HITM2212	Intro to Coding ICD-9	2
HITM2234	Coding III Advanced	3
HITM2242	Intro to Coding CPT	2
HITM2245	Coding IV CPT	3
HITM2250	Supervisory Leadership in Hlth	3
HITM2252	Quality Mgmt & Statistics	3
HITM2262	Reimbursement Systems	2
HITM2270	Professional Practice Experience II	1
HITM2272	Professional Practice Experience III	2
HLTH1106	Medical Terminology	2
HLTH2208	Pathophysiology	3
SPCH1114	Intro to Public Speaking	3
	MN Transfer Elective	6

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Human Resources

AAS 60 Credits

Moorhead • eCampus

Human Resources programs prepare students to provide support to companies and to individual employees in the area of human resources. AAS and AS graduates may assume duties in the following areas communication with employees, employee data recordkeeping, policies and administration, employee and labor relations, employment process, training and development, wage and salary, and benefit administration. The AS program is designed for more efficient course transfer to partner universities for students wishing to continue with additional education.

Course #	Course Title	Crds
Required		
ADMS1110	Word Processing	3
ADMS1116	Business Communications I	3
ADMS1128	Records/Database Mgmt	3
CPTR1104	Intro to Computer Tech	3
ENGL1101	College Writing I	3
HRES1122	Human Resource Management	3
HRES1126	Employee Processes	3
HRES1130	Benefits Administration	3
HRES1134	Training & Development	3
HRES2204	Policy Administration	3
HRES2212	Wage/Salary Administration	3
HRES2224	Employee/Labor Relations	3
HRES2245	HR Internship	1-4
HRES2252	HR Competency & Portfolio Eval	2
PHIL1201	Ethics	3
PSYC1200	General Psychology	3
SOC1111	Intro to Sociology	3
SPCH1114	Intro to Public Speaking	3
	Technical Electives	9

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Human Resources

AS 60 Credits

Moorhead • eCampus

Human Resources programs prepare students to provide support to companies and to individual employees in the area of human resources. AAS and AS graduates may assume duties in the areas of communication with employees, employee data recordkeeping, policies and administration, employee and labor relations, employment process, training and development, wage and salary, and benefit administration. The AS program is designed for more efficient course transfer to partner universities for students wishing to continue with additional education.

Course #	Course Title	Crds
Required		
ADMS1110	Word Processing	3
CPTR1104	Intro to Computer Tech	3
ENGL1101	College Writing I	3
ENGL1102	College Writing II	3
HRES1122	Human Resource Management	3
HRES1126	Employee Processes	3
HRES1130	Benefits Administration	3
HRES1134	Training & Development	3
HRES2204	Policy Administration	3
HRES2212	Wage/Salary Administration	3
HRES2224	Employee/Labor Relations	3
HRES2245	HR Internship	1-4
HRES2252	HR Competency & Portfolio Eval	2
PHIL1201	Ethics	3
PSYC1200	General Psychology	3
SOC1111	Intro to Sociology	3
SPCH1114	Intro to Public Speaking	3
	MN Transfer Elective	12

HVAC - Heating, Ventilation, & Air Conditioning

Diploma 42 Credits

Wadena

The HVAC - Heating, Ventilation, and Air Conditioning graduate will be able to design residential and light commercial central heating and air conditioning systems according to load requirements; install, troubleshoot and repair all residential and light commercial heating and air conditioning equipment; design, fabricate and install forced air and hot water distribution systems, using sheet metal, ductboard, copper tubing, Wirsbo tubing, Pex tubing, PVC and other accepted materials; install a wide range of oil and gas boilers and forced-air furnaces; and design, fabricate and install home and light commercial ventilation systems, including both exhaust and fresh air make-up exchangers.

The graduate will be knowledgeable in electric theory, motor and heating-air conditioning controls and switching relays, pumps, compressors, various design variables and code requirements. This comprehensive program of technical and general education will give the graduate knowledge and hands-on experience in both the electrical and mechanical aspects of HVAC. This combination will prepare students to build and install ductwork, along with the ability to troubleshoot today's sophisticated high-efficiency heating units.

Course #	Course Title	Crds
Required		
CONE1102	Intro Elec Circuit Theory	4
CPTR1104	Intro to Computer Tech	3
GSMS1000	Technical Mathematics	3
GSMS1110	First Aid / CPR	1
HEAT2218	Gas Heating	2
HEAT2220	Oil Heating	2
HVAC1102	Duct Fitting Construction	3
HVAC1104	HVAC Electrical Controls	3
HVAC1128	HVAC Design & Installation	5
HVAC2202	Air Handling	2
HVAC2204	Adv Duct Fitting Const	3
HVAC2212	Hot Water Heating	3
HVAC2220	Heat Pump Theory	1
HVAC2250	HVAC Applications	1
REFR1110	Refrig, A/C & Htg Prin	3
REFR1112	Refrig, A/C & Htg Lab	3

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Industrial Mechanical Maintenance

AAS 69 Credits

Wadena • Corporate Credit

Modern American manufacturing and industry has become a highly complicated, high-speed, high-pressure environment requiring skilled workers that have knowledge beyond the rigid confines of individual trade-based maintenance workers of the past. This program prepares students with a foundation in the theory, application and principles of today's manufacturing and industrial environment. This includes the proper installation, maintenance and troubleshooting of mechanical, electrical, electronic, electromechanical and fluid power equipment. In addition, the Industrial Maintenance program introduces students to computerized maintenance management systems, current and emerging predictive/ preventive maintenance technologies, and root cause failure analysis. This program emphasizes hands-on learning with realistic labs and equipment, and most of the student's time is spent performing hands-on tasks related to the industry.

Course #	Course Title	Crds
Required		
CONE2206	Intro Motor Control Applic	3
ENGL1102	College Writing II	3
GSMS1000	Technical Mathematics	3
IMMA1110	Intro Power & Mech Sys	3
IMMA1112	Mech Blueprint Reading	2
METC1112	Manufacturing Processes	4
METC1152	Safety & Accident Prevent	3
METC2202	Power Trans & Mech Sys	3
METC2208	Basic Elec/Electronics	3
METC2210	Electro-Mech & Indus Cntrl	3
METC2220	Hydraulic Systems	3
METC2222	Fluid Power Systems	3
METC2228	Pneumatic Systems	3
PHYS1105	Fundamental Concepts in Physics	3
PSYC1101	Human Interaction	3
SPCH1112	Small Group Communication	3
	MN Transfer Elective	21

Industrial Mechanical Maintenance

Certificate 21 Credits

Wadena • Corporate Credit

Modern American manufacturing and industry has become a highly complicated, high-speed, high-pressure environment requiring skilled workers that have knowledge beyond the rigid confines of individual trade-based maintenance workers of the past. This program prepares students with a foundation in the theory, application and principles of today's manufacturing and industrial environment. This includes the proper installation, maintenance and troubleshooting of mechanical, electrical, electronic, electromechanical and fluid power equipment. In addition, the Industrial Maintenance program introduces students to computerized maintenance management systems, current and emerging predictive/ preventive maintenance technologies, and root cause failure analysis. This program emphasizes hands-on learning with realistic labs and equipment, and most of the student's time is spent performing hands-on tasks related to the industry.

Course #	Course Title	Crds
Required		
GSMS1000	Technical Mathematics	3
IMMA1110	Intro Power & Mech Sys	3
IMMA1112	Mech Blueprint Reading	2
METC1112	Manufacturing Processes	4
SPCH1112	Small Group Communication	3
	Technical Electives	6

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Industrial Mechanical Maintenance

Diploma 39 Credits

Wadena • Corporate Credit

Modern American manufacturing and industry has become a highly complicated, high-speed, high-pressure environment requiring skilled workers that have knowledge beyond the rigid confines of individual trade-based maintenance workers of the past. This program prepares students with a foundation in the theory, application and principles of today's manufacturing and industrial environment. This includes the proper installation, maintenance and troubleshooting of mechanical, electrical, electronic, electromechanical and fluid power equipment. In addition, the Industrial Maintenance program introduces students to computerized maintenance management systems, current and emerging predictive/ preventive maintenance technologies, and root cause failure analysis. This program emphasizes hands-on learning with realistic labs and equipment, and most of the student's time is spent performing hands-on tasks related to the industry.

Course #	Course Title	Crds
Required		
CONE1110	AC/DC Motors/Generators	4
CONE1124	Intro Elec Blueprint Read	2
CONE2206	Intro Motor Control Applic	3
CONE2236	Industrial Motor Maintenance	2
GSMS1000	Technical Mathematics	3
IMMA1110	Intro Power & Mech Sys	3
IMMA1112	Mech Blueprint Reading	2
METC1112	Manufacturing Processes	4
METC1152	Safety & Accident Prevent	3
METC2208	Basic Elec/Electronics	3
METC2222	Fluid Power Systems	3
PHYS1105	Fundamental Concepts in Physics	3
SPCH1112	Small Group Communication	3
TRNS1118	Welding I	2

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Information Technology

AS 60 Credits

Moorhead

The Information Technology Associate of Science degree prepares students to continue toward a bachelor's degree or enter the workforce. Students learn to use various hardware and software systems to solve problems for people and organizations. Students work with networking technologies, applications, Web technologies and database technologies. Students focus on the selection, application and administration of information technologies. The degree minimizes the number of credits required at selected institutions to complete a bachelors degree. The Information Technology Associate of Science degree is an ideal mix of practical experience and general education for a field that is constantly developing.

Course #	Course Title	Crds
Prerequisites		
MATH0090	Introductory Algebra	3
Required		
CPTR1106	Microcomputer Databases	3
CPTR1108	CISCO 1	3
CPTR1122	Microcomputer Maintenance	3
CPTR1138	Information Systems	3

CPTR1148	Microcomputer Operating Sys	3
CPTR1170	Web Engineering I	3
CPTR2224	Linux I	3
CPTR2236	Network Security	3
CPTR2242	Java Programming	3
CPTR2272	Network Operating Systems	3
ENGL1101	College Writing I	3
HUM2236	Technology in the Humanities	3
PSYC1200	General Psychology	3
	MN Transfer Elective	21

Information Technology

Diploma 60 Credits

Moorhead

The Information Technology Diploma prepares students to enter the workforce. Students learn to use various hardware and software systems to solve problems for people and organizations. Students work with networking technologies, applications, Web technologies and database technologies. The focus of this degree is practical preparation for work.

Course #	Course Title	Crds
Prerequisites		
MATH0090	Introductory Algebra	3
Required		
CPTR1104	Intro to Computer Tech	3
CPTR1106	Microcomputer Databases	3
CPTR1108	CISCO 1	3
CPTR1122	Microcomputer Maintenance	3
CPTR1138	Information Systems	3
CPTR1148	Microcomputer Operating Sys	3
CPTR1170	Web Engineering I	3
CPTR2224	Linux I	3
CPTR2236	Network Security	3
CPTR2242	Java Programming	3
CPTR2252	Microcomputer Systems Project	3
CPTR2272	Network Operating Systems	3
ENGL1101	College Writing I	3
HUM2236	Technology in the Humanities	3
PSYC1200	General Psychology	3
	Technical Electives	15

Landscape and Garden Center Technician

Diploma 34 Credits

Moorhead

The Landscape and Garden Center Technician program provides quality education in the areas of landscape design and construction, garden center operation and ornamental plant maintenance. The focus is on preparing graduates for challenging careers in the expanding field of landscaping and garden centers. Students will design and construct landscapes using a variety of techniques and construction materials. Students will also develop contemporary business concepts as they apply to landscape and garden centers. These outcomes will be accomplished through coursework, local tours and working at an outdoor landscaping laboratory.

Course #	Course Title	Crds
Required		
BIOL1107	Env Science Issues	3
CPTR1100	Fund Computer Concepts	1
LAND1102	Intro to Landscape/Horticulture	3
LAND1105	Soils and Fertilizers	3
LAND1108	Equipment Operations	2
LAND1111	Landscape Horticulture	3
LAND1114	Garden Center Operations	3
LAND1117	Landscape Management	3
LAND1120	Landscape Design Layout	3
LAND1123	Landscape Construction	4
LAND1126	Ornamental Plant Maintenance	3
LAND1129	Landscape Project	3

Manicurist

Certificate 17 Credits

Wadena

The Manicurist program is designed to give students a thorough knowledge of dermatology, the structure, growth and health of the nail, and chemistry as it relates to manicuring, as well as sanitation and safety procedures related to the practice of manicuring. Instruction will cover applied studies and skills in cleaning, conditioning, shaping, reinforcing, coloring and enhancing nails, as well as the application and repair of artificial nails.

The Board of Barbering and Cosmetologists, which is the cosmetology licensing body, requires 350 hours of clinical time in order to become licensed in the State of Minnesota. Upon completion of 350 hours and passing of the state exam, a license will be issued.

Course #	Course Title	Crds
Required		
COSM1131	Manicuring/Pedicuring	2
COSM1135	Advanced Nail Techniques	3
MANI1104	Preclinic Introduction	3
MANI1110	Preclinic Nail Care	3
MANI1134	Nail Clinic/License Prep	3
MANI1146	Manicurist Clinic I	3

Marine Engine Technology

AAS 69 Credits

Detroit Lakes

A marine engine technician works in an exciting, rapidly changing and growing industry. The Marine Engine Technology curriculum is designed to train competent marine technicians. The primary focus of the program is the diagnosis, service and repair of outboard and stern-drive engines, drive systems and related systems and components. Students will perform service on modern marine equipment using special test equipment and tools. Students in this program will learn how to plan and perform repairs according to the various manufacturers' recommended procedures.

Students entering this program should have good mechanical aptitude, communication skills and the ability to comprehend service literature. Graduates of this program are in high demand to fill positions in dealerships as technicians, with many having opportunities to move into management, self-employment and factory representative positions.

Course #	Course Title	Crds
Required		
CPTR1100	Fund Computer Concepts	1
ENGL1101	College Writing I	3
MRNT1104	Drive System Theory	3
MRNT1105	Introduction to Marine	2
MRNT1106	Drive System Service I	3
MRNT1120	Marine Starting & Charging Sys	3
MRNT2203	Marine Advanced Fuel Systems	4
MRNT2207	EFI & Advanced Electrical Sys	4
MRNT2210	Engine Service	3
MRNT2218	Adv Electrical Diagnosis	3
MRNT2222	Transom and Mid-Section Service	4
MRNT2224	Marine Indep Study Lab I	1
MRNT2231	Engine Perf Rebuild Diagnosics	5
PSCI1130	State and Local Government	3
SPCH1114	Intro to Public Speaking	3
TRNS1100	Intro to Shop Technology	4
TRNS1104	Transportation Electronics	3
TRNS1109	Fuel Systems I	4
TRNS1111	Electrical Systems I	4
	MN Transfer Elective	9

Marine Engine Technology

Certificate 30 Credits

Detroit Lakes

A marine engine technician works in an exciting, rapidly changing and growing industry. The Marine Engine Technology certificate program is designed to educate individuals to become competent marine technicians. The primary focus of the certificate program is training the student to be well-rounded in marine systems, both outboard and stern-drive. This training, coupled with taking the outdoor recreational engine program course, allows the graduate to be a valuable employee who can repair both recreational and marine products. Students will perform service on modern marine equipment using special test equipment and tools. Students in this program will learn how to plan and perform repairs according to the various manufacturers' recommended procedures.

Students entering this program should have good mechanical aptitude, communication skills and the ability to comprehend service literature. Graduates of this program are in high demand to fill technician positions in dealerships or will have the training to work for themselves on most types of recreational products.

Course #	Course Title	Crds
Required		
CPTR1104	Intro to Computer Tech	3
MRNT1104	Drive System Theory	3
MRNT1105	Introduction to Marine	2
MRNT1106	Drive System Service I	3
MRNT1120	Marine Starting Charging Sys	3
MRNT2224	Marine Indep Study Lab I	1
TRNS1100	Intro to Shop Technology	4
TRNS1104	Transportation Electronics	3
TRNS1109	Fuel Systems I	4
TRNS1111	Electrical Systems I	4

Marine Engine Technology

Diploma 64 Credits

Detroit Lakes

Marine engine technicians work in an exciting, rapidly changing and growing industry. The Marine Engine Technology curriculum is designed to educate individuals to become competent marine technicians. The primary focus of the program is the diagnosis, service and repair of outboard and stern-drive engines, drive systems and related systems and components. Students will perform service on modern marine equipment using special test equipment and tools. Students in this program will learn how to plan and perform repairs according to the various manufacturers' recommended procedures.

Students entering this program should have good mechanical aptitude, communication skills and the ability to comprehend service literature. Graduates of this program are in high demand to fill positions in dealerships as technicians, with many having opportunities to move into management, self-employment and factory representative positions.

Course #	Course Title	Crds
Required		
CPTR1104	Intro to Computer Tech	3
ENTR1100	Intro to Entrepreneurship	3
GSSI1104	Human Relations	3
MRNT1104	Drive System Theory	3
MRNT1105	Introduction to Marine	2
MRNT1106	Drive System Service I	3
MRNT1120	Marine Starting & Charging Sys	3
MRNT2203	Marine Advanced Fuel Systems	4
MRNT2207	EFI & Adv Electrical Systems	4
MRNT2210	Engine Service	3
MRNT2218	Adv Electrical Diagnosis	3
MRNT2221	Adv Drive Systems & Testing	4
MRNT2222	Transom and Mid-Section Service	4
MRNT2231	Engine Perf Rebuild & Diagnosics	5
MRNT22384	Stroke Outboard Engine Service	2
TRNS1100	Intro to Shop Technology	4
TRNS1104	Transportation Electronics	3
TRNS1109	Fuel Systems I	4
TRNS1111	Electrical Systems I	4

Marketing

AAS 68 Credits

Detroit Lakes

The Marketing AAS focuses on providing the practical knowledge and skills related to planning, managing and performing sales and marketing activities to meet organizational objectives. This AAS major includes marketing, management, sales, marketing research and other related business courses as well as general education courses.

This program is designed to prepare students for a wide variety of sales and marketing careers. Emphasis is on developing the skills to apply marketing knowledge, management and leadership skills, communication and interpersonal skills, problem solving and technology skills.

Course #	Course Title	Crds
Required		
ACCT1108	Business Math/Calculators	3
ACCT1124	Spreadsheet Applications	3
ADMS1116	Business Communications I	3
ADMT1174	MS Office PowerPoint Certification	1
ADMT2222	Event Planning	2
ADMT2224	Applied Event Management	1
BMGT1104	Research Methods	3
BUS1141	Intro to Business	3
BUS2204	Principles of Management	3
BUS2206	Principles of Marketing	3
BUS2220	Global Business	3
CPTR1104	Intro to Computer Tech	3
ENGL1101	College Writing I	3
GSWS1102	Contemporary Career Search	1
MKTG1106	Professional Selling	3
MKTG1110	Customer Service	3
MKTG1116	Advertising and Promotion	3
MKTG2290	Supervised Occup Exp I	3
PSYC1200	General Psychology	3
SPCH1114	Intro to Public Speaking	3
	MN Transfer Elective	9
	Technical Electives	6

Massage Therapy

Diploma 32 Credits

Wadena

Massage therapists specialize in professional massage treatments designed to support the health and well-being of clients. Skillful massage also assists clients in the recovery from physical ailments and reduces the ill effects of stress. Massage therapy students learn the fundamental techniques needed to perform effective massage treatments, as well as the theory behind delivering professional massage.

Massage therapy has a broad range of benefits including relaxation, stress reduction, pain management and recovery from injury, while promoting good health. Clients receiving professional massage include athletes, the elderly, performers and the general public. Even animals enjoy the benefits of massage.

After successful completion of the Massage Therapy program, students are eligible to sit for the National Certification Exam (NCE) administered by the National Certification Board for Therapeutic Massage and Bodywork (NCBTMB).

Course #	Course Title	Crds
Prerequisites		
CPTR1100	Fund Computer Concepts	1
GSMS1110	First Aid / CPR	1
Required		
BIOL2230	Human Anatomy & Phys I	3
BIOL2232	Human Anatomy & Phys II	3
GSMS1102	Intro to Nutrition	2
THPY1110	Massage Tech/Ethics	3
THPY1118	Kinesiology	3
THPY1123	Integrative Massage	2
THPY1130	Advanced Massage	2
THPY1135	Deep Tissue Massage	2
THPY1142	Student Clinic	3
THPY1146	Certification Prep	2
THPY1148	Sports Massage & Hydro	2
THPY1150	Business Development	2
THPY1156	Massage Pathophysiology	3

Mechanical Drafting & Design

AAS 72 Credits

Moorhead

Design technicians use a graphic language to communicate ideas or products that must be processed, manufactured or constructed. Students draw layouts of assembly processes and make freehand sketches and rough layouts of machine equipment and parts. They may study costs as they relate to the usefulness of designs and translate the ideas of the engineer into the working plans used in making or installing a product. They convey the engineer's ideas and design to the craftsworker who will make the products. Technicians work under the immediate supervision of a mechanical engineer. They perform operational tasks of a technical nature following well-defined standards using a computer-aided drafting system and electronic mail.

Course #	Course Title	Crds
Required		
CADD1102	Fundamentals of CADD	4
CADD1114	Intro Solids & Parametric Model	4
CADD2214	Adv Solids & Parametric Model	4
CONM2216	Computer Estimating	2
CPTR1104	Intro to Computer Tech	3
ECON2210	Macroeconomics	3
ENGL1101	College Writing I	3
ENGR1118	Engineering Applications	3
MCDD1102	Mech Engineering Drawing I	3
MCDD1106	Mech Engineering Drawing II	4
MCDD1120	Drafting Practices	2
MCDD1122	Geo Dimensioning & Tolerancing	3

MCDD1124	Mechanical Drafting Applications I	3
MCDD2204	Mech Engineering Drawing III	4
MCDD2224	Manufacturing Process	2
MCDD2246	Tool Design	3
MCDD2248	CNC Application	3
MCDD2252	Mechanical Drafting Applications II	4
SOC1111	Intro to Sociology	3
	MN Transfer Elective	12

Mechanical Drafting & Design

Diploma 60 Credits

Moorhead

Design technicians use a graphic language to communicate ideas or products that must be processed, manufactured or constructed. Students draw layouts of assembly processes and make freehand sketches and rough layouts of machine equipment and parts. They may study costs as they relate to the usefulness of designs and translate the ideas of the engineer into the working plans used in making or installing a product. They convey the engineer's ideas and design to the craftsworker who will make the products. Technicians work under the immediate supervision of a mechanical engineer. They perform operational tasks of a technical nature following well-defined standards using a compputer-aided drafting system and electronic mail.

Course #	Course Title	Crds
Required		
CADD1102	Fundamentals of CADD	4
CADD1114	Intro to Solids & Parametric Model	4
CADD2214	Adv Solids & Parametric Modeling	4
CONM2216	Computer Estimating	2
CPTR1104	Intro to Computer Tech	3
ENGR1118	Engineering Applications	3
GSCO1102	Applied Communications	3
GSSI1104	Human Relations	3
MCDD1102	Mech Engineering Drawing I	3
MCDD1106	Mech Engineering Drawing II	4
MCDD1120	Drafting Practices	2
MCDD1122	Geo Dimensioning & Tolerancing	3
MCDD1124	Mechanical Drafting Applications I	3
MCDD2204	Mech Engineering Drawing III	4
MCDD2224	Manufacturing Process	2
MCDD2246	Tool Design	3
MCDD2248	CNC Application	3
MCDD2252	Mechanical Drafting Applications II	4
	Technical Electives	3

Medical Administrative Assistant

AAS 68 Credits

Moorhead • Wadena • eCampus

The Medical Administrative Assistant AAS program prepares students to work in a variety of medical settings, handling all types of administrative duties for private practice, hospitals and clinics. This program offers a broad foundation of knowledge and skills, expanding the traditional role of the medical secretary through the addition of liberal arts classes as preparation for leadership roles.

Graduates of this program are highly-trained office specialists who are prepared to accept responsibility for the coordination of medical office functions and patient billing processes. Successful medical administrative assistants have excellent communication skills and exhibit a high degree of professionalism.

All courses in the program incorporate the skills needed for employment in the medical administrative assistant profession.

Course #	Course Title	Crds
Prerequisites		
ADMS1100	Keyboarding I	3
Required		
ACCT1012	Prin of Bookkeeping	3
ADMM1122	Medical Office Procedures	4
ADMM1130	Medical Transcription	4
ADMM1140	Medical Language Applications	3
ADMM1150	Medical Billing/Insurance	4
ADMM1152	Outpatient Coding	4
ADMM2122	Medical Office Management	3
ADMM2270	Medical Office Simulation	2
ADMS1116	Business Communications I	3
ADMS2124	Computer Technology Information	3
CPTR1104	Intro to Computer Tech	3
ENGL1101	College Writing I	3
GSMS1104	Intro to Anatomy & Physiology	3
HLTH1106	Medical Terminology	2
HLTH2208	Pathophysiology	3
PSYC2222	Developmental Psychology	3
SPCH1114	Intro to Public Speaking	3
	MN Transfer Elective	9
	Technical Electives	6

Medical Coding & Insurance

Diploma 36 Credits

Moorhead • Wadena • eCampus

The Medical Coding and Insurance diploma program prepares students in many of the procedures associated with billing for medical services. Students receive training in medical billing processes including patient account management, diagnosis and procedure coding, and medical insurance claim completion and processing. The program focuses on coding and insurance procedures for the medical office.

Medical coding involves using nationally recognized coding systems to classify procedures and diagnoses related to medical treatment. The codes provide information that is used in insurance claims processing.

Many different types of insurance programs are handled in the medical office. Students are trained in claims processes of many insurance programs/plans such as Medicare, Medicaid and TRICARE, profit and nonprofit third-party payers, workers compensation packages and disability coverage. Graduates of the program may be eligible to take several of the national coding certification exams.

Courses in the program incorporate the skills needed for employment in the coding and insurance departments of medical facilities.

Course #	Course Title	Crds
Required		
ACCT1012	Prin of Bookkeeping	3
ADMM1122	Medical Office Procedures	4
ADMM1140	Medical Language Applications	3
ADMM1150	Medical Billing/Insurance	4
ADMM1152	Outpatient Coding	4
ADMM2154	Hospital Billing	2
ADMM2252	Advanced Coding	3
ADMM2270	Medical Office Simulation	2
CPTR1104	Intro to Computer Tech	3
GSMS1104	Intro to Anatomy & Physiology	3
HLTH1106	Medical Terminology	2
HLTH2208	Pathophysiology	3

Medical Laboratory Technician

AS 64 Credits

Fergus Falls

In cooperation with affiliate hospitals, the college offers a two-year program for training medical laboratory technicians. The curriculum includes three semesters on campus of general education, science and medical laboratory technician courses, and one semester (24 weeks) in a clinical experience at one of the three affiliate hospital laboratories. Upon completion of the program, students are prepared for the MLT National Board of Registry certification exam and employment in hospital, clinic and commercial labs, blood donor facilities, instrument sales, and education and research facilities. Graduates may articulate to a four-year institution to receive a Bachelor of Science degree in medical technology.

Individuals entering the program must complete a background check required by the Minnesota Human Services licensing division. Individuals who do not receive a clear background check may participate in the program but may not be allowed to participate in clinical and/or field experience courses.

An overall GPA of 2.0 is required and a "C" grade or better is required in the following courses: ZOO1122, ZOO1123, ZOO1126, BIOL2230, BIOL2232, BIOL2257, CHEM1100, CHEM1104 and all MLT courses. Students may repeat a course one time.

Essential technical standards expected of entry-level MLT students

Prior to entering the MLT clinical experience, it is the responsibility of the student to become familiar with the essential technical standards required for successful completion of the AS degree in the Medical Laboratory Technician program. The success of the student is based on these technical standards but is dependent on academic standards as well. Academic standards must be met prior to admission to the clinical experience. Students are asked to read the following standards,which are necessary for student success in the clinical experience at an affiliate.

Essential Function: Observation
Description: Use of the senses
Examples: Recognize and grade agglutination reactions; palpate blood vessels

Essential Function: Communication
Description: Speech; reading; writing

Examples: Interact with patients and other members of the health care team; comprehension of procedure manuals

Essential Function: Motor
Description: Physical ability; coordination; stamina
Examples: Operation of manual and automated equipment; performance of venipuncture

Essential Function: Intellectual/conceptual
Description: Ability to solve problems
Examples: Measuring, calculating, reasoning, analyzing, prioritizing and synthesis of data

Essential Function: Behavioral/social
Description: Emotional stability
Examples: Functions effectively under stress; displays flexibility

Course #	Course Title	Crds
Required		
BIOL1125	Basic Immunology	2
BIOL2230	Human Anatomy & Phys I	3
BIOL2232	Human Anatomy & Phys II	3
BIOL2257	Medical Microbiology	3
CHEM1100	Fund Concepts Chemistry	3
CHEM1104	Medical Chemistry	4
ENGL1101	College Writing I	3
ENGL1102	College Writing II	3
MLT1110	Prin/Proc Phlebotomy	2
MLT2217	Clin Hematology	3
MLT2218	Clin Urinalysis	1
MLT2219	Clin Chemistry/Sp Chem	3
MLT2220	Clin Blood Bank	2
MLT2221	Clin Microbiology	3
MLT2228	Clin Parasit/Mycol	1
MLT2229	Phlebot/Review	1
MLT2230	Clinical Applications	1
ZOO1122	Hematology & Coag	4
ZOO1123	Immunohematology	3
ZOO1126	Urinalysis/Body Fluids	2
	MN Transfer Elective	14

Medical Office Assistant

Diploma 35 Credits

Moorhead • Wadena • eCampus

Medical office assistants are highly trained office specialists who participate in the coordination of medical office functions including patient appointment scheduling, telephone communications, medical record maintenance, medical transcription and patient billing processes. Successful medical office assistants have excellent communication skills and exhibit a high degree of professionalism. An additional certificate is available for Medical Transcription.

All courses in the program incorporate the skills needed for employment in the medical office assistant profession.

Course #	Course Title	Crds
Prerequisite		
ADMS1100	Keyboarding I	3
Required		
ADMM1122	Medical Office Procedures	4
ADMM1130	Medical Transcription	4
ADMM1140	Medical Language Applications	3
ADMM1150	Medical Billing/Insurance	4
ADMM1152	Outpatient Coding	4
ADMM2270	Medical Office Simulation	2
ADMS1116	Business Communications I	3
CPTR1104	Intro to Computer Tech	3
GSMS1104	Intro to Anatomy & Physiology	3
HLTH1106	Medical Terminology	2
HLTH2208	Pathophysiology	3

Medical Receptionist

Certificate 27 Credits

Moorhead • Wadena • eCampus

This program prepares individuals to work in a medical office setting. Medical receptionists greet patients, arrange appointments and provide informational services to patients. They possess excellent communication and technology skills. This position requires an excellent command of medical terminology, anatomy and physiology, as well as expertise in medical office procedures.

Course #	Course Title	Crds
Required		
ADMM1122	Medical Office Procedures	4
ADMM1140	Medical Language Applications	3
ADMM1150	Medical Billing/Insurance	4
ADMM2270	Medical Office Simulation	2
ADMS1116	Business Communications I	3
CPTR1104	Intro to Computer Tech	3
GSMS1104	Intro to Anatomy & Physiology	3
HLTH1106	Medical Terminology	2
HLTH2208	Pathophysiology	3

Medical Transcription

Certificate 29 Credits

Moorhead • Wadena • eCampus

A medical transcriptionist is a medical language specialist who prepares a variety of medical reports and documents for inclusion in the medical records of patients. Medical transcriptionists must possess a vast knowledge of the medical field and its associated terminology, as well as a high degree of computer and written communication skills.

All courses in the program incorporate the skills needed for employment as a medical transcriptionist. Graduates of this program may be eligible to write the national exam for certified medical transcriptionists.

Course #	Course Title	Crds
Prerequisite		
ADMS1100	Keyboarding I	3
Required		
ADMM1130	Medical Transcription	4
ADMM1140	Medical Language Applications	3
ADMM2230	Adv Medical Transcription	4
ADMM2235	RMT Exam Review	1
ADMS1104	Skillbuilding	1
ADMS1110	Word Processing	3
ADMS1116	Business Communications I	3
CPTR1104	Intro to Computer Tech	3
GSMS1104	Intro to Anatomy & Physiology	3
HLTH1106	Medical Terminology	2
HLTH2208	Pathophysiology	3

Music

AFA 64 Credits

Fergus Falls

The Associate in Fine Arts in Music is designed to provide a means for music students to pursue a path with seamless transition to a four-year music degree and to be best prepared for a degree and/or career in music. The AFA emphasizes a fine arts focus within a discipline area of study and offers students preparation for fine arts study at the university level. The AFA in Music at M State allows for a choral or instrumental emphasis and ensures that students will have the necessary coursework to prepare for advanced studies in music.

Course #	Course Title	Crds
Required		
ENGL1101	College Writing I	3
ENGL1102	College Writing II	3
MUSC1114	Beg Class Piano	2
MUSC1116	The World of Music	3
MUSC1120	Introduction to Music Technology	3
MUSC1121	Basic Theory and Musicianship I	3
MUSC1122	Basic Theory and Musicianship II	3
MUSC1123	Sight Singing & Ear Training I	1
MUSC1124	Sight Singing & Ear Training II	1
MUSC2223	Sight Singing & Ear Training III	1
MUSC2224	Sight Singing & Ear Training IV	1
MUSC2231	Adv Theory and Musicianship III	3
MUSC2232	Adv Theory and Musicianship IV	3
	Recital Review	0
	Part in band/choir groups	8
	Private Voice/Instrument Lessons	6
	MN Transfer Elective	20

Nanoscience Technology

AAS 72 Credits

Moorhead

Nanoscience is a field of study involving the areas of chemistry, biology, engineering and physics. It studies the composition, structure, properties and behavior of material at the molecular and atomic level. Research, observation, measurement and manipulation occur at the nanometer range. A nanometer is one billionth of a meter. Visualize approximately 80,000 nanometers being the diameter of a human hair.

Nanotechnology is the purposeful design, manufacturing and production of a product at the nanoscale, which has useful applications in our world. Nanostructures can fit together into larger structures to produce items such as microelectronics, microsensors and micromachines.

ADMISSIONS PROCESS:
Due to high interest in the Nanoscience Technology program as well as limited space available, there will be a selection process for students to advance to the second year of the program. A majority of the criteria for selection will be based upon the first two semesters of coursework. Courses taken during this time are mostly general education courses, which also may be applied to an Associate of Arts degree. Additional application materials will be sent to students who apply to the Nanoscience Technology program.

Course #	Course Title	Crds
Required		
CHEM180	Intro to Organic/Biochem-MSUM	4
CHEM185	Organic/Biochemistry Lab-MSUM	1
BIOL1111	General Biology I	4
CHEM1100	Fund Concepts Chemistry	3
CPTR1104	Intro to Computer Tech	3
ENGL1101	College Writing I	3
ENGL1201	Technical Writing	3
MATH1114	College Algebra	4
MATH1213	Intro to Statistics	4
NANO1101	Fundamentals of Nanoscience I	3
NANO1102	Fundamentals of Nanoscience II	3
NANO1197	Industry Internship Experience I	1
NANO2205	Laboratory Instrumentation	6
NANO2207	Nanobiotech & Nanobiomedicine	3
NANO2208	Nanomaterials & Coatings	3
NANO2209	Thin Film Technology	3
NANO2210	Semiconductor Fabrication	3
NANO2211	Manufacturing Quality Assurance	3
NANO2212	Surface & Thin Film Analysis Tech	3
NANO2231	Industry Internship Experience II	2
NANO2232	Industry Internship Experience III	5
PHYS1106	Fund of Physics - Mechanics	3
	Technical Electives	2

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Nursing

(Generic Option) - Associate Degree (RN) 64 Credits

Detroit Lakes • Fergus Falls • Wadena

The Associate Degree Nursing Program is designed to prepare registered nurses to deliver nursing care in a variety of settings. The graduating nurse will be able to provide nursing care in the hospital, long-term care, clinics, community health and other health-related facilities. Upon completion of the nursing program, an Associate of Science Degree is awarded by the college. Nursing graduates may apply to take the National Council Licensing Exam-RN (NCLEX-RN) following graduation. The Fergus Falls, Detroit Lakes and Wadena campuses are offering the two-year generic program. This program is designed for students with no previous nursing experience.

Individuals entering the program must annually complete a background check required by the Minnesota Human Services licensing division.

Course #	Course Title	Crds
Prerequisites		
CPTR1100	Fund Computer Concepts	1
HLTH1115	Intro to Nursing in Long Term Care	3
MATH0090	Introductory Algebra	3
Required		
BIOL2202	Principles Nutrition	3
BIOL2230	Human Anatomy & Phys I	3
BIOL2232	Human Anatomy & Phys II	3
BIOL2257	Medical Microbiology	3
CHEM1100	Fund Concepts Chemistry	3
ENGL1101	College Writing I	3
ENGL1102	College Writing II	3
ENGL2230	Environmental Literature	3
NURS1400	Introduction to Professional Nursing	2
NURS1406	Nursing Fundamentals I	3
NURS1415	Nursing Clinical I	2
NURS1416	Nursing Fundamentals II	4
NURS1426	Reproductive Health	2
NURS2426	Reproductive Disorders	2
NURS2437	Nursing Clinical II	4
NURS2438	Restorative Nursing I	4
NURS2447	Nursing Clinical III	4
NURS2448	Restorative Nursing II	3
NURS2455	Advanced IV Therapy	1
NURS2464	Nursing Leadership	1
NURS2466	Mental Health Nursing	2
PSYC2222	Developmental Psychology	3
SOC1111	Intro to Sociology	3

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Nursing

(Mobility Option) - Associate Degree (RN) 32 Credits

Detroit Lakes • Fergus Falls • Moorhead • Wadena • eCampus

The LPN to Associate Degree RN mobility option is designed for LPNs seeking to become registered nurses. This option is offered on all four M State campuses. Accepted students take a two-credit role transition course in the summer and then join the Generic Associate Degree nursing students in the second year of the nursing program. The Associate Degree Nursing Program is designed to prepare registered nurses to deliver nursing care in a variety of settings. The graduating nurse will be able to provide nursing care in the hospital, long-term care, clinics, community health and other health-related facilities. Upon completion of the nursing program, an Associate of Science Degree is awarded by the college. Nursing graduates may apply to take the National Council Licensing Exam-RN (NCLEX-RN) following graduation.

Individuals entering the program must annually complete a background check required by the Minnesota Human Services licensing division.

Course #	Course Title	Crds
Prerequisties		
BIOL2230	Human Anatomy & Phys I	3
BIOL2232	Human Anatomy & Phys II	3
BIOL2257	Medical Microbiology	3
CHEM1100	Fund Concepts Chemistry	3
CPTR1100	Fund Computer Concepts	1
ENGL1101	College Writing I	3
ENGL1102	College Writing II	3
PSYC2222	Developmental Psychology	3
Required		
BIOL2202	Principles Nutrition	3
ENGL2239	Nature Writers	3
NURS2410	Role Transition	2
NURS2426	Reproductive Disorders	2
NURS2437	Nursing Clinical II	4
NURS2438	Restorative Nursing I	4
NURS2447	Nursing Clinical III	4
NURS2448	Restorative Nursing II	3
NURS2455	Advanced IV Therapy	1
NURS2464	Nursing Leadership	1
NURS2466	Mental Health Nursing	2
SOC1111	Intro to Sociology	3

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Paralegal

AAS 66 Credits

Detroit Lakes • eCampus

This program prepares graduates for work under the supervision of an attorney with a focus on real estate, estate planning and probate and in a variety of other legal specialty areas, such as civil litigation and family law. Students will study theory as it applies to the law; research statutes, case law and court rules; and prepare legal documents. The student will also learn to analyze procedural and substantive legal problems, manage case loads and interview clients.

Course #	Course Title	Crds
Required		
ACCT1012	Prin of Bookkeeping	3
ACCT1120	Business Law	3
ADML1126	Criminal, ADR, Appellate	3
ADML2222	Legal Terminology	2
CPTR1104	Intro to Computer Tech	3
ENGL1101	College Writing I	3
GSWS1102	Contemporary Career Search	1
HRES1122	Human Resource Management	3
PARA1101	Intro to Paralegal	3
PARA1102	Research & Writing I	3
PARA1106	Wills, Trusts & Probate	3
PARA1110	Torts for Paralegal	3
PARA1112	Legal Ethics for the Paralegal	3
PARA2202	Research & Writing II	3

PARA2204	Real Property	3
PARA2210	Advanced Paralegal Practices	3
PARA2212	Family Law	3
PSCI1130	State and Local Government	3
PSCI2220	Intro to Constitutional Theory	3
PSYC1200	General Psychology	3
SPCH1114	Intro to Public Speaking	3
	MN Transfer Elective	3
	Technical Electives	3

Pharmacy Technology

AAS 60 Credits

eCampus

The pharmacy technician works as an assistant to a registered pharmacist, assisting or relieving the pharmacist in routine technical and clerical duties and functioning in strict accordance with standard written procedures and guidelines under the supervision of the professional pharmacist. AAS graduates have enhanced potential for upward progression in the career of pharmacy, as the general education component gives the student a well-rounded foundation of knowledge. Students, using their own laptop computers, learn how to access patient profiles, input drug orders and print prescription labels. They learn how to fill prescriptions and aseptic techniques for intravenous drug admixture in the college's state-of-the art teaching lab. Fulfilling the role of a pharmacy technician allows the pharmacist more time for patient care in regard to medication treatment.

Individuals entering the program must complete a background check required by the Minnesota Human Services licensing division. Individuals who do not receive a clear background check may participate in the program but may not be allowed to participate in clinical and/or field experience courses.

Course #	Course Title	Crds
Required		
BIOL2230	Human Anatomy & Phys I	3
BIOL2232	Human Anatomy & Phys II	3
BIOL2257	Medical Microbiology	3
CHEM1100	Fund Concepts Chemistry	3
CPTR1104	Intro to Computer Tech	3
ENGL1101	College Writing I	3
GSMS1110	First Aid / CPR	1
GSSI1104	Human Relations	3
HLTH1106	Medical Terminology	2
MATH1102	Finite Math	3
PHRM1001	Fund Concepts of Pharmacy	3
PHRM2001	Pharmacy Prin / Prac I	4
PHRM2002	Pharmacy Prin / Prac II	5
PHRM2004	Drug Properties/Distribution	3
PHRM2010	Experiential / Hospital	3
PHRM2012	Experiential / Retail	3
PSYC1200	General Psychology	3
SPCH1114	Intro to Public Speaking	3
	Critical Thinking Goal Area	3
	Technical Electives	3

Pharmacy Technology

Diploma 36 Credits

eCampus

The pharmacy technician works as an assistant to a registered pharmacist, assisting or relieving the pharmacist in routine technical and clerical duties and functioning in strict accordance with standard written procedures and guidelines under the supervision of the professional pharmacist. Students, using their own laptop computers, learn how to access patient profiles, input drug orders and print prescription labels. They learn how to fill prescriptions and aseptic techniques for intravenous drug admixture in the college's state-of-the art teaching lab. Fulfilling the role of a pharmacy technician allows the pharmacist more time for patient care in regards to medication treatment.

Individuals entering the program must complete a background check required by the Minnesota Human Services licensing division. Individuals who do not receive a clear background check may participate in the program but may not be allowed to participate in clinical and/or field experience courses.

Course #	Course Title	Crds
Required		
CHEM1100	Fund Concepts Chemistry	3
CPTR1104	Intro to Computer Tech	3
GSMS1104	Intro to Anatomy & Physiology	3
GSMS1110	First Aid / CPR	1
GSSI1104	Human Relations	3
HLTH1106	Medical Terminology	2
PHRM1001	Fund Concepts of Pharmacy	3
PHRM2001	Pharmacy Prin / Prac I	4
PHRM2002	Pharmacy Prin / Prac II	5
PHRM2004	Drug Properties/Distribution	3
PHRM2010	Experiential / Hospital	3
PHRM2012	Experiential / Retail	3

Phlebotomy Technician

Certificate 10 Credits

Fergus Falls

The M State Phlebotomy Technician program prepares students to properly perform phlebotomy (venipuncture and capillary blood) collection and processing in a professional manner. This program also trains students to become proficient and multi-skilled in point-of-care (bedside) testing, computer and communication skills. Nurse assistant home health aide training enhances the student's knowledge of patient care and increases his/her marketability in the health care field. Phlebotomy technicians are employed by hospital and clinic labs, insurance companies, donor blood facilities and home health care.

The program is completed in one semester (fall) and includes a three-week (120-hour) clinical experience under supervision in an affiliate hospital/clinic laboratory. Students must attain a 2.0 GPA or better, and a grade of "C" or better is required in MLT1110 Principles and Procedures of Phlebotomy and MLT1112 Clinical Phlebotomy. Upon completion of the program, graduates may elect to complete the national certification exam for phlebotomy technicians.

Individuals entering the program must complete a background check required by the Minnesota Human Services licensing division. Individual who do not receive a clear background check may participate in the program but may not be allowed to participate in clinical and/or field experience courses.

Phlebotomy Technician Application Procedure:
Interested applicants should have a high school or GED diploma and apply to the M State student services office. For additional information, contact the program director at 218.736.1594.

Course #	Course Title	Crds
Required		
HLTH1106	Medical Terminology	2
MLT1110	Prin/Proc Phlebotomy	2
MLT1112	Clinical Phlebotomy	3
	Technical Electives	3

Plumbing Technology

AAS 64 Credits

Moorhead • Wadena

The Plumbing Technology program prepares the student to begin a career in plumbing and pipe fitting. Coursework provides the student with technical understanding and skills development and integrates theory with practical experience. Through the plumbing program, the student develops skills in piping techniques and procedures, plumbing and piping systems, residential and commercial system installations, blueprint reading and isometric interpretation. The successful graduate is eligible for 800 hours on his/her apprenticeship card and employment at an advanced apprenticeship level in a variety of businesses found in rural and metropolitan areas.

Course #	Course Title	Crds
Required		
BIOL1107	Env Science Issues	3
BIOL1108	Env Science Issues Lab	1
ENGL1101	College Writing I	3
GSCO1102	Applied Communications	3
MATH1100	World of Math	3
PHIL1201	Ethics	3
PLBG1102	Piping Trades/Job Safety	2
PLBG1104	Bldg Sewers/Drainage Sys	3
PLBG1108	Plumbing/Piping Drawings	2
PLBG1110	Copper Pipe Procedures	2
PLBG1112	Plastic Pipe Procedures	2
PLBG1114	Steel Pipe Procedures	2
PLBG1116	Plumbing Systems	3
PLBG1120	Plumbing Installation	3
PLBG1140	Plumbing Service Learning Project	3
SOC1111	Intro to Sociology	3
	Technical Electives	23

Plumbing Technology

Diploma 36 Credits

Moorhead • Wadena

The Plumbing Technology program prepares the student to begin a career in plumbing and pipe fitting. Coursework provides the student with technical understanding and skills development and integrates theory with practical experience. Through the plumbing program, the student develops skills in piping techniques and procedures, plumbing and piping systems, residential and commercial system installations, blueprint reading and isometric interpretation. The successful graduate is eligible for 800 hours on his/her apprenticeship card and employment at an advanced apprenticeship level in a variety of businesses found in rural and metropolitan areas.

Course #	Course Title	Crds
Required		
GSCO1102	Applied Communications	3
PLBG1102	Piping Trades/Job Safety	2
PLBG1104	Bldg Sewers/Drainage Sys	3
PLBG1108	Plumbing/Piping Drawings	2
PLBG1110	Copper Pipe Procedures	2
PLBG1112	Plastic Pipe Procedures	2
PLBG1114	Steel Pipe Procedures	2
PLBG1116	Plumbing Systems	3
PLBG1120	Plumbing Installation	3
PLBG1124	Plumbing Field Internship	3
	Technical Electives	11

PowerSports Technology

Diploma 64 Credits

Detroit Lakes

Students who wish to become skilled power sports mechanics must be capable of diagnosing mechanical failures quickly and accurately if they are to be in a position to repair the job at a fair salary return. Most types of two- and four-cycle small engines that are presently used to power lawn mowers, snowblowers, generators, garden tractors, rototillers, snowmobiles, ATVs and personal watercraft will be covered. Students who perform satisfactorily may find employment as service technicians, sales personnel and factory representatives, or they may wish to enter business for themselves.

This program requires a mechanical aptitude and the ability to read and comprehend technical service manuals, to understand and perform a variety of diagnostic procedures and to work well with fellow employees and with customers.

Course #	Course Title	Crds
CPTR1104	Intro to Computer Tech	3
ENTR1102	Start-Up Survival & Success	1
GSMS1110	First Aid / CPR	1
GSSI1104	Human Relations	3
GSWS1102	Contemporary Career Search	1
MRNT1110	Transom & Mid Section Service	3
MRNT1121	Marine Starting & Charging Sys	2
MRNT1122	Small Outboard Fuel Systems	2
MRNT1124	Small Outboard Electrical Systems	3
MRNT2236	Boat Reconditioning	2
PWST1101	Engine Fundamentals Theory	3
PWST1102	Snowmobile Theory I	3
PWST1103	Snowmobile Theory II	3
PWST1104	Adv Engine/Troubleshooting Theory	3
PWST1111	Engine Fundamentals Lab	4
PWST1112	Snowmobile Lab I	4
PWST1113	Snowmobile Lab II	4
PWST1114	Adv Engine/Troubleshooting Lab	4
PWST2101	Motorcycle Theory I	3
PWST2102	Motorcycle Theory II	2
PWST2111	Motorcycle Lab I	4
PWST2112	Motorcycle Lab II	4

Practical Nursing

AAS 63 Credits

Detroit Lakes • Fergus Falls • Moorhead • Wadena

The Practical Nursing program prepares the student to practice within the scope of practical nursing under the supervision of a registered nurse. The student is taught to use the nursing process at the practical nurse level in the maintenance of health and prevention of illness, the observation and nursing care of persons experiencing changes in health status, and how to administer prescribed medication and treatments. The student will receive supervised learning experience in caring for individuals in a variety of healthcare settings, such as hospitals, long-term care facilities and physician clinics. M State offers an Associate in Applied Science degree in practical nursing on all four campuses. Students may choose to complete the diploma in practical nursing track on the Detroit Lakes, Fergus Falls, and Wadena campuses. After successful completion of either track, graduates are eligible to apply to take the National Council Licensure Examination for the Practical Nurse. The Minnesota Board of Nursing has offically approved the Practical Nursing Program on all four campuses of M State.

Students applying to the practical nursing program must:
* have a high school GPA of 2.5 or greater
OR
* have a GED score of 500 or greater
OR
*have earned 12 or more college credits, with a GPA of 2.5 or greater
AND
*have completed the background check required by the Minnesota Human Services licensing division. Individuals who do not receive a clear background check may participate in the program but may not be allowed to participate in clinical and/or field experience courses.

Prerequisites:
1. Accuplacer testing in math, reading, and writing. Any needed developmental courses must be completed before entering any PNSG prefix course.
2. Completion of the certified Nursing Assistant or evidence of NA course completion within last five years.
3. Completion of CPTR1100 or successful test out of the course.
4. CPR for Health Care Providers, or equivalent, is required prior to taking any nursing courses.

Course #	Course Title	Crds
Required		
BIOL2230	Human Anatomy & Phys I	3
BIOL2232	Human Anatomy & Phys II	3
ENGL1101	College Writing I	3
PNSG1200	Concepts of Nursing	2
PNSG1207	Health Promotion I	5
PNSG1209	Family Wellness	3
PNSG1214	Nursing Pharmacology	2
PNSG1216	PN Clinical I	5
PNSG1217	Health Promotion II	4
PNSG1220	Psychosocial Nursing	3
PNSG1223	Health Promotion III	4
PNSG1226	PN Clinical II	4
PNSG1234	Nursing Roles	1
PNSG1236	Practicum	2
PSYC2222	Developmental Psychology	3
	MN Transfer Elective	15
	Practical Nursing Elective	1

Practical Nursing

Diploma 47 Credits

Detroit Lakes • Fergus Falls • Wadena

The Practical Nursing program prepares the student to practice within the scope of practical nursing under the supervision of a registered nurse. The student is taught to use the nursing process at the practical nurse level in the maintenance of health and prevention of illness, the observation and nursing care of persons experiencing changes in health status, and how to administer prescribed medication and treatments. The student will receive supervised learning experience in caring for individuals in a variety of health care settings, such as hospitals, long-term care facilities, and physician clinics. M State offers an Associate in Applied Science degree in practical nursing on all four campuses. Students may choose to complete the diploma in practical nursing track on the Detroit Lakes, Fergus Falls and Wadena campuses. After successful completion of either track, graduates are eligible to apply to take the National Council Licensure Examination for the Practical Nurse. The Minnesota Board of Nursing has offically approved the Practical Nursing Program on all four campuses of M State.

Students applying to the practical nursing program must:
* have a high school GPA of 2.5 or greater
OR
* have a GED score of 500 or greater
OR
*have earned 12 or more college credits, with a GPA of 2.5 or greater
AND
*have completed the background check required by the Minnesota Human Services licensing division. Individuals who do not receive a clear background check may participate in the program but may not be allowed to participate in clinical and/or field experience courses.

Prerequisites:
1. Accuplacer testing in math, reading and writing. Any needed developmental courses must be completed before entering any PNSG prefix course.
2. Completion of the certified Nursing Assistant or evidence of NA course completion within last five years.
3. Completion of CPTR1100 or successful test out of the course.
4. CPR for Health Care Providers, or equivalent, is required prior to taking any nursing

courses.

Course #	Course Title	Crds
Required		
BIOL2230	Human Anatomy & Phys I	3
BIOL2232	Human Anatomy & Phys II	3
ENGL1101	College Writing I	3
PNSG1200	Concepts of Nursing	2
PNSG1207	Health Promotion I	5
PNSG1209	Family Wellness	3
PNSG1214	Nursing Pharmacology	2
PNSG1216	PN Clinical I	5
PNSG1217	Health Promotion II	4
PNSG1220	Psychosocial Nursing	3
PNSG1223	Health Promotion III	4
PNSG1226	PN Clinical II	4
PNSG1234	Nursing Roles	1
PNSG1236	Practicum	2
PSYC2222	Developmental Psychology	3

Project Design Technician

Certificate 15 Credits

Corporate Credit

The Project Design Technician certificate provides training in manufacturing processes, materials properties, CAD, project management and communication techniques for design workers at Marvin Windows and Doors. The program prepares workers to meet client needs by designing appropriate products and providing exemplary internal and external customer service.

Course #	Course Title	Crds
CUST1102	Communication & the Customer	3
CUST1104	Window & Door Const Methods	3
CUST1106	Cust Window & Door CAD Design	3
CUST1108	Drafting Princ for Windows & Doors	3
	Technical Electives	3

Radiologic Technology

AAS 89 Credits

Detroit Lakes • eCampus

The Radiologic Technology program prepares individuals to perform various radiologic procedures. The radiologic technologist instructs and positions patients, manipulates radiographic equipment, adjusts exposure factors, provides radiation protection for patient and self, develops radiographic images, evaluates the quality of finished radiographs and carries out activities associated with quality control. The radiologic technologist carries out these functions under the supervision or upon the direction of a registered radiologic technologist.

Graduates of the Radiologic Technology program are eligible for the national certification exam administered by the American Registry of Radiologic Technologists. Successful completion of this exam qualifies the graduate as a Registered Radiologic Technologist.

Applicant selection to enter into the major is done each Spring for the Fall term. The application deadline is January 15, with selection to be completed by mid-April.

The selection of students into the Radiologic Technology Program is done on a point system using the Application Assessment Sheet to rank applicants comparatively based on course grades and GPA.

Individuals entering the program must complete a background check required by the Minnesota Human Services licensing division. Individuals who do not receive a clear background check may participate in the program but may not be allowed to participate in clinical and/or field experience courses.

Prerequisites/Admission Requirements:

1. General College Admissions Requirements

-Official high school transcript or GED

-Immunization forms

-Official transcripts from other colleges you have previously attended are required for admission.

2. Accuplacer testing in math, reading and writing, or a waiver. College readiness courses must be completed before entering any Radiology Technology courses. Waivers may be granted in some cases.
3. Consent to Disclose/Allied Health Division Student Data complete and on file (e.g. immunizations).
4. BCA Background Study upon program entry and annually thereafter.
5. Completion of the following courses:
   a. BIOL2230: Human Anatomy & Phys I
   b. CHEM1100: Fund Concepts of Chemistry
   c. ENGL1101: College Writing
   d. MATH1114: College Algebra
   e. BIOL2232: Human Anatomy & Phys II
   f. PHYS1105: Fund Concepts in Physics
   g. PSYC1200: General Psychology
   h. RADT1108: Intro to Rad Tech/Pat Care
6. CPR Certification for Healthcare Providers current and maintained throughout program.
7. Cumulative GPA of 2.5 or higher; applicants on academic probation or suspension will not be eligible for admission.

See Applicant Assessment form for more on the scoring process.

Prospective Students

If you wish to apply to the online program, go to http://distance.minnesota.edu "Online Support" for more general information, or "Live Chat" for live discussion with the online support office, or "Ask a Question" to post your own question. Admissions and application information will also be found on the Distance Minnesota Web site.

If you wish to apply to the campus program, click on the "Apply to a Campus" link on the left side of this page.

If you wish to apply for both programs, follow both processes above.

Course #	Course Title	Crds
Required		
BIOL2230	Human Anatomy & Phys I	3
BIOL2232	Human Anatomy & Phys II	3
CHEM1100	Fund Concepts Chemistry	3
CPTR1100	Fund Computer Concepts	1
ENGL1101	College Writing I	3
HLTH1106	Medical Terminology	2
MATH1114	College Algebra	4
PHYS1105	Fundamental Concepts in Physics	3
PSYC1200	General Psychology	3
RADT1108	Intro to Rad Tech/Pat Care	3
RADT1114	Radiographic Proc I	4
RADT1124	Radiographic Proc II	4
RADT1132	Principles of Radiobiology	4
RADT1140	Radiographic Imaging	4
RADT1144	Radiographic Procedures III	3
RADT1148	Clinical Radiography I	6
RADT1158	Clinical Radiography II	6
RADT1168	Clinical Radiography III	6
RADT2222	Imaging Equipment	3
RADT2244	Legal/Ethical Issues in Rad Tech	3
RADT2248	Clinical Radiography IV	6
RADT2250	Radiographic Pathology	3
RADT2258	Clinical Radiography V	7
RADT2280	Board Review	2

Refrigeration and Air Conditioning

Diploma 70 Credits

Moorhead

Students in this program work with both commercial and residential heating, ventilating, air conditioning and refrigeration equipment (HVAC/R). This comprehensive background, together with shop skills in layout, estimating, installation and repair, qualifies graduates to enter one of the world's fastest-growing industries. Employment exists with manufacturers, engineers, contractors and specialized service firms.

Students learn to research and develop applications of more efficient, cost-effective equipment and procedures. Many new, exciting and energy-saving innovations are being developed. Technicians train in this industry to provide the technology to control the environment in any enclosed area, from a home to a space capsule. This includes controlling the indoor air quality (IAQ) by utilizing mechanical means to remove pollutants and maintain desired humidity and temperature settings. The knowledge to design, install and maintain these special environments for people, products and perishables is essential today.

Course #	Course Title	Crds
Required		
CPTR1104	Intro to Computer Tech	3
GSCO1102	Applied Communications	3
GSMS1000	Technical Mathematics	3
REFR1102	Refrigeration Principles	3
REFR1104	Refrigeration Lab	4
REFR1106	Electrical Fundamentals	3
REFR1108	Electrical Lab	3
REFR1110	Refrig, A/C & Htg Prin	3
REFR1112	Refrig, A/C & Htg Lab	3
REFR1113	Refrigeration Elect Circuits Fund	3
REFR1115	Refrigeration Elect Circuits Lab	3
REFR1130	Refrigeration Mgmt	2
REFR1140	Gas Heating	2
REFR2202	Commercial Refrig & A/C Prin	4
REFR2204	Commercial Refrig & A/C Lab	3
REFR2206	Commercial Electrical Prin	3
REFR2208	Commercial Electrical Lab	3

REFR2211	Advanced Refrigeration Principles	4
REFR2212	Adv Refrigeration Lab	3
REFR2213	Advanced Electrical Theory	3
REFR2215	Advanced Electrical Applications	3
REFR2216	Refrigeration Internship	3
REFR2220	HVAC Troubleshooting	3

Sales and Marketing

Diploma 32 Credits

Detroit Lakes

This program prepares graduates for a sales and marketing career. Positions are available in marketing, merchandising, selling, retailing and service businesses. This major includes courses in computer technology, selling strategies, customer service, telemarketing, and retailing and marketing concepts.

Course #	Course Title	Crds
Required		
ACCT1108	Business Math/Calculators	3
CPTR1104	Intro to Computer Tech	3
MKTG1100	Prin of Marketing	3
MKTG1106	Professional Selling	3
MKTG1110	Customer Service	3
MKTG1112	Retail Management	3
MKTG2204	Advanced Professional Selling	3
MKTG2290	Supervised Occup Exp I	3
	Technical Electives	8

Supervisory Leadership

AAS 60 Credits

Moorhead • Corporate Credit

This program prepares working foremen, team leaders and supervisors with a knowledge base in practices and principles of leadership, supervision and management. Core elements include human resource policies, interpersonal communication, organizational behavior, quality and customer service issues, and industry fiscal and safety requirements.

Course #	Course Title	Crds
Required		
ADMS1116	Business Communications I	3
ATEC2238	Quality Planning & Control	3
CPTR1100	Fund Computer Concepts	1
ENGL1101	College Writing I	3
HRES1122	Human Resource Management	3
METC2240	Risk Management	2
METC2260	Project Management	3
MKTG1110	Customer Service	3
MKTG1120	Supervisory Leadership	3
PHIL1201	Ethics	3
PSYC1101	Human Interaction	3
SPCH1112	Small Group Communication	3
SPCH1114	Intro to Public Speaking	3
SUPL1110	Budget & Financial Mgmt	3
SUPL2212	Linking People & Productivity	3
SUPL2214	Supervisory Ldrship Intern	3
	MN Transfer Elective	6
	Technical Electives	9

Supervisory Leadership

Certificate 30 Credits

Moorhead • Corporate Credit

This program prepares working foremen, team leaders and supervisors with a knowledge base in practices and principles of leadership, supervision and management. Core elements include human resource policies, interpersonal communication, organizational behavior, quality and customer service issues, and industry fiscal and safety requirements.

Course #	Course Title	Crds
Required		
ADMS1116	Business Communications I	3
ATEC2238	Quality Planning & Control	3
BUS2206	Principles of Marketing	3
HRES1122	Human Resource Management	3
METC2260	Project Management	3
MKTG1120	Supervisory Leadership	3
PSYC1101	Human Interaction	3
SPCH1112	Small Group Communication	3
SUPL1110	Budget & Financial Mgmt	3
SUPL1118	Lead & Facilitate Teams	3

Supervisory Leadership Essentials

Certificate 18 Credits

Corporate Credit

This program prepares working foremen, team leaders and supervisors with a knowledge base in practices and principles of leadership, supervision and management. Core elements include human resource policies, interpersonal communication, organizational behavior, quality and customer service issues, and industry fiscal and safety requirements.

Course #	Course Title	Crds
ADMS1116	Business Communications I	3
BUS2206	Principles of Marketing	3
HRES1122	Human Resource Management	3
MKTG1120	Supervisory Leadership	3
SPCH1112	Small Group Communication	3
SUPL1118	Lead & Facilitate Teams	3

Sustainable Food Production

Diploma 30 Credits

Fergus Falls

M State's hands-on Sustainable Food Production diploma program gives students the knowledge and skills necessary to meet the many agricultural and environmental challenges facing food production in the 21st century. Students enrolled in M State's food production program will emerge at the forefront of this critical subject and will be prepared to grow food themselves, or contribute to the country and the world as innovative problem solvers and catalysts for positive change in this new paradigm of food production. In addition to practical agricultural curriculum, the program includes courses in sociology to assist students in understanding the cultural and community aspects of sustainable food production.

Course #	Course Title	Crds
Required		
SFP1100	Principles of Sustainability	3
SFP1200	Farm Ecology	3
SFP1301	Artisan Food & Value-added Ag	3
SFP1302	Forage & Crop Systems	5
SFP1303	Grass-based Livestock Systems	4
SFP1304	Practical Farm Skills	2
SFP1400	Farm Marketing & Mgmt	3
SFP1500	Internship	4
SOC2222	Sociology of Agriculture	3

Technological Studies I

Certificate 14 Credits

Corporate Credit

Individual who complete this certificate will have the broad-based technical training needed to directly enter current energy and manufacturing industries. These foundational technical skills will also support future learning in emerging renewable energy industries and the manufacturing companies that will support them.

Course #	Course Title	Crds
IMMA1110	Intro Power & Mech Sys	3
MATH1100	World of Math	3
METC1114	Engineering Drawings/CAD I	3
METC2208	Basic Elec/Electronics	3
TRNS1118	Welding I	2

Technological Studies II

Certificate 11 Credits

Corporate Credit

Individual who complete this certificate will have the broad-based technical training needed to directly enter current energy and manufacturing industries. These foundational technical skills will also support future learning in emerging renewable energy industries and the manufacturing companies that will support them.

Course #	Course Title	Crds
CONE2208	Prog Logic Controllers	2
METC1152	Safety & Accident Prevent	3
METC2222	Fluid Power Systems	3

Voice & Video Over Internet Protocol

Certificate 15 Credits

Wadena

This 15-credit certificate will provide a series of courses specifically chosen to take a telecommunications student, computer networking student or an industry professional into two major areas: Voice over Internet Protocol and Video over Internet Protocol. The student will learn to configure, test, install, analyze traffic, troubleshoot and maintain Voice over Internet Protocol, Video over Internet Protocol and converged networks. After completion of the certificate, students can enter into a variety of "cutting edge" fields in network communication.

Course #	Course Title	Crds
Required		
CVNP2210	Voice, Video & Data Convergence	4
CVNP2212	VoIP / IP Telephony	4
CVNP2220	Video Over Internet Protocol	4
CVNP2222	Voice Video Over IP Sys Project	3

Web Development

AAS 68 Credits

Detroit Lakes • eCampus

A Web developer facilitates information exchange by coordinating, compiling and converting various media into an internet standard format to provide accessible information and effective communication for an organization. Graduates of the Web Development program will develop and manage Web sites on the internet and corporate intranets. They will be prepared to create and manage customer-friendly interactive Web sites for individuals, small businesses and large corporations.

Course #	Course Title	Crds
Prerequisite		
CPTR1104	Intro to Computer Tech	3
Required		
CPTR1142	Network Essentials	3
CSEC1102	Careers in Information Systems	1
ENGL1101	College Writing I	3
GSWS1102	Contemporary Career Search	1
INTD1104	Systems Administration	3
INTD1108	HTML	3
INTD1110	Intro to Web Programming	3
INTD1112	Web Graphic Design	3
INTD1116	Web Graphic Creation	3
INTD1120	Internet Business Fundamentals	1
INTD1122	Databases on the Server	4
INTD1124	Cascading Style Sheets	3
INTD1130	E-Commerce	3
INTD2208	Java Script/DHTML	4
INTD2214	Multimedia Web Design	4
INTD2220	Advanced Web Programming	4
INTD2230	Emerg Tech-Resrch & Feasibility	1
INTD2234	Adv Web Site Project	3
INTD2244	PHP Development	3
SPCH1114	Intro to Public Speaking	3
	MN Transfer Elective	12

Web Development

Certificate 30 Credits

Detroit Lakes • eCampus

Web Development provides students with the opportunity to use both creative and technical skills. Students in the Web Development program will learn to develop and maintain customer-friendly interactive Web sites using the most sophisticated tools currently available. Students will gain a strong understanding, appreciation and practical knowledge of the processes involved in building a successful Web site and e-commerce storefront. The courses in the Web Development Certificate are aligned with the CIW (Certified Internet Webmaster) Master Designer certification.

Course #	Course Title	Crds
Required		
CPTR1142	Network Essentials	3
INTD1108	HTML	3
INTD1110	Intro to Web Programming	3
INTD1112	Web Graphic Design	3
INTD1116	Web Graphic Creation	3
INTD1120	Internet Business Fundamentals	1
INTD1124	Cascading Style Sheets	3
INTD1130	E-Commerce	3
INTD2214	Multimedia Web Design	4
INTD2230	Emerg Tech-Resrch & Feasibility	1
	General Studies Electives	3

Web Development

Diploma 65 Credits

Detroit Lakes • eCampus

A Web developer facilitates information exchange by coordinating, compiling and converting various media into an internet standard format to provide accessible information and effective communication for an organization. Graduates of the Web Development program will develop and manage Web sites on the internet and corporate intranets. They will be prepared to create and manage customer-friendly interactive Web sites for individuals, small businesses and large corporations.

Course #	Course Title	Crds
Prerequisite		
CPTR1104	Intro to Computer Tech	3
Required		
CPTR1142	Network Essentials	3
CSEC1102	Careers in Information Systems	1
GSCO1102	Applied Communications	3
GSSI1104	Human Relations	3
GSWS1102	Contemporary Career Search	1
INTD1104	Systems Administration	3
INTD1108	HTML	3
INTD1110	Intro to Web Programming	3
INTD1112	Web Graphic Design	3
INTD1116	Web Graphic Creation	3
INTD1120	Internet Business Fundamentals	1
INTD1122	Databases on the Server	4
INTD1124	Cascading Style Sheets	3
INTD1130	E-Commerce	3
INTD2208	Java Script/DHTML	4
INTD2214	Multimedia Web Design	4
INTD2220	Advanced Web Programming	4
INTD2230	Emerg Tech-Resrch & Feasibility	1
INTD2234	Adv Web Site Project	3
INTD2244	PHP Development	3
	General Studies Electives	3
	Technical Electives	6

Wine Studies

Certificate 9 Credits

Moorhead

The Wine Studies program provides training for a variety of occupations in the hospitality and food service industry, as well as for in-home social settings. Students enrolling in this program learn to study wine varietals and styles with specific attention to their food compatibilities and will be involved in extensive tasting of wine and food while focusing on the specific elements of interaction between the two. Discover creative ways to improve menu and wine list compatibilities. Explore the best equipment for professional wine service, including glasses, ice buckets, corkscrews and more. Explore the characters of the world's top classic varieties and review their histories and food compatibilities with classical wine varietals. Acquire a comprehensive wine vocabulary using professional terms and learn to describe your sensory impressions and evaluation of a wine into words. The program requires the ability to work as part of a team and communicate well with others. Tact, courtesy and a pleasant personality are important, as are a keen sense of taste and smell.

Course #	Course Title	Crds
Required		
WINE1100	Introduction to Wine	3
WINE1200	Food and Wine Pairing	2
WINE1300	Old World Wines	2
WINE1400	New World Wines	2

Course Descriptions

Computer & Network Technology
Wadena Campus

Nanoscience Technology
Moorhead Campus

Architectural Technology
Detroit Lakes Campus

AFA – Music
Fergus Falls Campus

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Course #	CourseTitle	CR	Lec/Lab/OJT

ABCT1100 Intro to Auto Body 2 1/1/0
This course is the study of auto body safety, shop operation procedures, power and hand tool use, shop equipment applications, frame measuring instruments, service literature, intro to estimating guides, general service knowledge, professional work habits, industry standards and expectations.
Prerequisite(s): None

ABCT1102 Auto Body Off Car Repair 4 2/2/0
This course teaches students sheet metal repair processes used for minor auto body repairs. Instruction includes the use of tools and auto body industry equipment. Students learn skills of body filler and fiberglass repair along with corrosion protection. Environmental standards will be introduced.
Pre/Corequisite(s): TRNS1102

ABCT1104 Auto Body Lab I 3 0/3/0
This is a lab course in which students will build proficiency in basic auto body skills of welding, sheet metal repair, corrosion protection, rust repair, body filler and fiberglass repair.
Pre/Corequisite(s): TRNS1118, ABCT1102

ABCT1106 Intro to Refinishing 2 1/1/0
This course teaches students refinishing safety, use of tools and equipment surface preparation and refinishing material application procedures.
Pre/Corequisite(s): TRNS1102

ABCT1110 Panel Replacement 2 1/1/0
This course covers the replacement of damaged panels using current industry procedures.
Prerequisite(s): TRNS1102

ABCT1112 Auto Body Refinishing 4 1/3/0
This course teaches students preparation for overall refinishing procedures, paint mixing and color matching. It also teaches skills in spot repair, blending and application of pinstriping and chip guard.
Prerequisite(s): None

ABCT1114 Auto Body Lab II 4 0/4/0
This is a lab course in which students will build proficiency in auto body skills of refinishing, corrosion protection, rust repair, glass repair and welding.
Prerequisite(s): ABCT1106, TRNS1118

ABCT1116 Glass and Trim 2 1/1/0
This course teaches students safe procedures for the removal, replacement and repair of movable glass. It also covers the application of various methods of attachments on auto body trim and hardware.
Prerequisite(s): TRNS1102

ABCT1118 Basic Electrical 2 1/1/0
Preparation for the electronic and computer related courses that follow. The theory and operation of electricity, semi-conductors (transistors, diodes, light emitting diodes, fluorescent displays) and test instruments will be studied.
Prerequisite(s): None

ABCT2202 Unibody/Frame Alignment 5 2/3/0
Students study safe repair of unitized and conventional frame vehicles. Students study suspension systems and learn procedures for wheel alignment.
Prerequisite(s): None

ABCT2204 Body Shop Operation 3 2/1/0
Emphasis on proper shop management procedures including inventory management, parts and repair ordering, payroll procedures, employee/employer relations, hiring/dismissal procedures, customer relations, estimating procedures, insurance procedures and insurance coverage's.
Prerequisite(s): None

ABCT2206 Mechanical Components I 2 1/1/0
Principles of removing and installing mechanical parts in front wheel and rear wheel drive vehicles. Students also study principles of air conditioning, evacuate and replace components and change air conditioning systems.
Prerequisite(s): None

ABCT2208 Major Collision Lab I 3 0/3/0
This course is a lab course in which students build proficiency in their auto body repair skills. Emphasis in this course is on major collision repair. Students will also be expected to exhibit dependability and the attitudes and work habits that employers expect of their employees.
Prerequisite(s): None

ABCT2210 Collision Damage Repair 5 2/3/0
Students learn tie down and clamping techniques, measuring and pulling procedures to repair direct and indirect damage on open and closed panels. Replacement of damaged panels is also covered.
Prerequisite(s): ABCT1104, ABCT1114

ABCT2212 Mechanical Components II 2 1/1/0
Students will continue to develop skills working on replacement of mechanical components damaged in collisions. Students will learn to identify potential damage areas resulting from varied types of collisions, to be included in estimates of damage repairs.
Prerequisite(s): ABCT2206

ABCT2214 Major Collision Lab II 5 0/5/0
This course is a lab course in which students will build proficiency in major collision repair and complete and spot refinishing.
Prerequisite(s): ABCT2208

ABCT2216 Spot Repair and Paint Blending 2 0/2/0
This course provides a workplace like setting in which students perform spot repairs and spot repair refinishing. Emphasis in this course is on proper spot repair procedures and paint blending skills.
Prerequisite(s): None

ABCT2222 Auto Body Internship 1 0/0/1
This course is designed by the student and advisor in cooperation with industry to provide an on-the-job training experience for the student. The student will prepare an internship plan consistent with 48 hours of internship time. The plan should reflect the internship site, student knowledge, prior course work and skills. This course will provide the student with an opportunity to integrate the skills, knowledge and concepts gained in previous course work into an occupational experience.
Prerequisite(s): Advisor approval

ACCT1012 Prin of Bookkeeping 3 2/1/0
This course covers the basic accounting cycle for service and merchandising businesses. Topics include the analyses of business transactions, recording transactions in a variety of journals, payroll procedures and the preparation of financial reports.
Prerequisite(s): None

ACCT1101 Payroll 3 2/1/0
This course covers the various tax laws pertaining to the computation and payment of salaries and wages. Topics include preparation of employment records, payroll registers, time cards, employee earnings records and government payroll reports.
Prerequisite(s): None

ACCT1108 Business Math/Calculators 3 2/1/0
This course covers how to make commonly occurring business-related calculations, how to apply these calculations to accounting and other business functions and how to use the touch system on the computer number pad keyboard.
Prerequisite(s): None

ACCT1120 Business Law 3 3/0/0
This course is an introduction to the principles of law as they apply to citizens and businesses. Topics include the court system, legal system, contract, negotiable instruments, agency and employer/employee relationship.
Prerequisite(s): None

ACCT1124 Spreadsheet Applications 3 2/1/0
This course covers the use of a computerized spreadsheet system for accounting applications. Topics include document creation, storage and retrieval, editing, printing, creating charts, database applications and file distribution.
Prerequisite(s): CPTR1104

ACCT2201 Financial Accounting I Lab 1 0/1/0
This course is the lab course associated with Financial Accounting I (ACCT2211). Students must be enrolled in ACCT2211 to enroll in this course. Major content will be the practical application of concepts introduced in the lecture course.
Pre/Corequisite(s): High School accounting recommended; ACCT2211

ACCT2202 Financial Accounting II Lab 1 0/1/0
This course is the lab course associated with Financial Accounting II (ACCT2212). Students must be enrolled in ACCT2212 to enroll in this course. Major content will be the practical application of concepts introduced in the lecture course.
Prerequisite(s): ACCT2211; Corequisite: ACCT2212

ACCT2203 Managerial Accounting Lab 1 0/1/0
This course is the lab course associated with Managerial Accounting (ACCT2213). Students must be enrolled in ACCT2213 to enroll in this course. Major content will be the practical application of concepts introduced in the lecture course.
Pre/Corequisite(s): ACCT2211; ACCT2213

ACCT2211 Financial Accounting I 3 3/0/0
Introduction to the content and concepts underlying financial statements. Course content includes study of the accounting model, financial statements, merchandise accounting, internal controls and accounting for assets. The course will focus on using accounting information for decision making.
Prerequisite(s): High school accounting recommended

ACCT2212 Financial Accounting II 3 3/0/0
This course continues the introduction to the content and concepts underlying basic financial statements. Major content includes income measurement, accrual accounting, accounting theory, time-value of money, accounting for current and long-term liabilities, owner's equity for sole proprietorships, partnerships and corporations, statement of cash flows and financial statement analysis.
Prerequisite(s): ACCT2211

ACCT2213 Managerial Accounting 3 3/0/0
This course focuses on strategic decision-making related to cost analysis and cost management.
Prerequisite(s): ACCT2211

ACCT2215 Computerized Acct App 3 2/1/0
This course is an introduction to computerized accounting applications and software used in the business environment. Topics may include general ledger accounting, payroll procedures, accounts receivable, accounts payable, inventory and depreciation.
Prerequisite(s): CPTR1104 or BUS1120 or CSCI1155; and ACCT2211 or ACCT1012

ACCT2216 QuickBooks 3 2/1/0
This course is a continuation of computerized accounting applications and software used in the business environment.
Prerequisite(s): CPTR1104 and ACCT2211

ACCT2217 Advanced Computerized Accounting 3 2/1/0
This course is a continuation of computerized accounting applications and software used in the business environment.
Prerequisite(s): CPTR1104 and ACCT2211

ACCT2255 Income Tax-Individual 3 2/1/0
This course provides an explanation and interpretation of the Internal Revenue Code as applied to individual income tax returns. Topics covered include filing requirements, filing status, gross income and exclusions, business income and expenses, tax credits and estimated taxes.
Prerequisite(s): None

ACCT2256 Income Tax-Business 3 2/1/0
This course provides an explanation and interpretation of the Internal Revenue Code as applied to sole proprietorships, partnerships and corporations. Topics include business income, expenses, business tax credits, withholding and payment of established estate and trust tax issues.
Prerequisite(s): None

ACCT2291 VITA 1 0/1/0
This course prepares the student for preparation of federal and state income tax returns for individuals. Emphasis is placed on form preparation with the use of computerized tax preparation software.
Prerequisite(s): None

ACCT2295 Certified Bookkeeper Review Course 3 3/0/0
This course is designed to prepare students to take and pass the national Certified Bookkeeper examination in order to obtain the Certified Bookkeeper designation conferred by the American Institute of Professional Bookkeepers (AIPB). The course content will include adjustments and error correction, payroll and deprecation, inventory and internal controls.
Prerequisite(s): ACCT2211, ACCT2212 or accounting experience

ACCT2620 Intermediate Accounting I 4 3/1/0
This course is a comprehensive study of accounting theory and concepts with an analysis of the influence on financial accounting by various boards, associations and governmental agencies. Topics may include the income statement, balance sheet, statement of cash flows and various asset groups.
Prerequisite(s): ACCT2212

ACCT2622 Intermediate Accounting II 4 3/1/0
This course is a continuation of a comprehensive study of accounting theory and concepts. Topics include various asset, liabilities and owners' equity, contributed capital and retained earnings. Other topics may be included.
Prerequisite(s): ACCT2620

ACCT2630 Fund/Nonprofit Accounting 3 2/1/0
This course is concerned with the fundamentals involved in fund/nonprofit accounting. It prepares the student to apply the basic governmental accounting principles and to prepare financial statements for fund/nonprofit organizations.
Prerequisite(s): ACCT2212

ACCT2642 Accounting Internship 2 0/0/2
This course provides students with actual work experience in accounting careers. A competency-based internship plan is developed for each student.
Prerequisite(s): Advisor approval

ACCT2643 Accounting Internship 3 0/0/3
This course provides students with actual work experiences in accounting careers. A competency-based internship plan is developed for each student.
Prerequisite(s): Advisor approval

ACCT2644 Special Problems I 1 0/1/0
The intent of this course is to allow flexibility in providing learning experiences to meet the special needs of both the student and the college.
Prerequisite(s): Advisor approval

ACCT2645 Special Problems II 2 0/2/0
The intent of this course is to allow flexibility in providing learning experiences to meet the special needs of both the student and the college.
Prerequisite(s): Advisor approval

ACCT2800 RAP Review 3 2/1/0
This course serves as a capstone course covering financial accounting, internal control, professional ethics, business consulting services, managerial accounting, business law and taxation. It is also designed to prepare the student for the Registered Accounting Practitioner exam. Corequisites: ACCT202, ACCT204 or 2 yr. Associates degree or Diploma in Accounting.
Prerequisite(s): ACCT1120 or BUS2150, ACCT2620, ACCT2256, ACCT2630

ADMM1122 Medical Office Procedures 4 3/1/0
This course offers hands-on training in the tasks performed by medical administrative personnel in a medical office setting. Topics include healthcare careers, legal and ethical responsibilities, medical appointments and calendars, professional communication including telephone techniques, health information responsibilities, meeting and travel arrangements, introduction to medical office management and career search strategies.
Pre/Corequisite(s): HLTH1106

ADMM1128 Health Unit Coordinator Procedures 2 2/0/0
This course is for individuals presently working or those seeking employment as a health unit coordinator (unit clerk) in a health care facility. Coordinator responsibilities including maintenance of patient records, transcription of orders, communication skills and admission and discharge of patients will be covered.
Pre/Corequisite(s): CPTR1104, HLTH1106

ADMM1130 Medical Transcription 4 2/2/0
This course is an introduction to transcription of dictated medical reports used in a variety of medical facilities. Emphasis is placed on proper formatting, building transcription proficiency and application of medical transcription style as defined by the American Association of Medical Transcriptionists. Students are expected to possess the ability to type 40 words per minute in order to successfully complete this course.
Prerequisite(s): HLTH1106; **Corequisite:** GSMS1104

ADMM1140 Medical Language Applications 3 3/0/0
This course provides an in-depth exploration of medical terms used in pharmacology, radiology, laboratory and pathology, surgery, psychiatry, oncology, podiatry, physical and occupational therapy. Spelling, proofreading and analysis of medical documentation will be reviewed, along with a study of a variety of medical documents. A solid foundation of medical terminology is cultivated in this course.
Prerequisite(s): HLTH1106

ADMM1150 Medical Billing/Insurance 4 3/1/0
This course provides information related to medical billing and health insurance. Topics covered include billing and statement preparation in the medical office, introduction to medical coding, types of health insurance coverage, insurance claim processes and related ethical and legal issues.
Prerequisite(s): HLTH1106; **Corequisite:** GSMS1104

ADMM1152 Outpatient Coding 4 3/1/0
This course is an introduction to medical coding and emphasizes coding in a medical office and other outpatient care facilities. Course topics include ICD-9 and ICD-10, CPT and HCPCS Level II and III procedural coding and legal and ethical issues related to outpatient coding practices.
Prerequisite(s): HLTH1106; **Corequisite:** GSMS1104

ADMM2122 Medical Office Management 3 3/0/0
This course examines the many responsibilities of a medical office manager. Whether in a small private practice or in a large group practice, a medical office manager must be aware of current regulations in the health care industry and how these regulations affect the operations of a health care organization. Office management, business operations, human resources, financial management and marketing for health care organizations are also explored.
Prerequisite(s): ADMM1122

ADMM2154 Hospital Billing 2 1/1/0
This course covers billing processes related to the hospital claim form. Billing for inpatient, ambulatory surgery and hospital-based outpatient services are covered.
Prerequisite(s): ADMM1150 or ADMM1152

ADMM2230 Adv Medical Transcription 4 1/3/0
This course is a continuation of medical transcription practice introduced in ADMM130. Emphasis is placed on independent practice of techniques used in a medical transcription setting. Proper formatting, appropriate terminology and development of transcription proficiency are stressed.
Prerequisite(s): ADMM1130

ADMM2235 RMT Exam Review 1 1/0/0
This course prepares students to take the Registered Medical Transcriptionist (RMT) examination. Review of medical transcription rules and language will be integral components this course. Practice examinations will be taken under timed conditions. The course will assist the student in determining a plan of study and continued learning in the area of medical language in preparation for the RMT certification examination.
Prerequisite(s): None

ADMM2252 Advanced Coding 3 2/1/0
This course is a continuation of ADMM152 Outpatient Coding. The student will apply coding knowledge by abstracting information from outpatient records for billing and insurance purposes. The course utilizes practical examples to reinforce coding principles and provides an introduction to computer applications related to coding.
Prerequisite(s): ADMM1152

ADMM2258 CPC Examination Review 1 1/0/0
This course prepares students to take the Certified Professional Coder (CPC) examination. Review of CPT, ICD-9-CM and HCPCS coding will be an integral part of this course. Practice examinations will be taken under timed conditions. The course assists the student in establishing a personal plan for continued development in preparation for the certification examination.
Pre/Corequisite(s): ADMM2252

Course #	CourseTitle	CR	Lec/Lab/OJT

ADMM2260 CPC-H Examination Review 1 1/0/0
This course prepares students to take the Certified Professional Coder - Hospital (CPC-H) examination. Review of CPT, ICD-9-CM and HCPCS coding will be an integral part of this course. Practice examinations will be taken under timed conditions. The course assists the student in establishing a personal plan for continued development in preparation for the certification examination.
Prerequisite(s): ADMM2252

ADMM2262 Auditing Medical Record-Surgical and Ancillary Services 3 3/0/0
This course will teach the students to audit surgical and ancillary services for appropriate documentation and code submission in multiple healthcare settings. Emphasis will be placed on current reimbursement rules and regulations.
Prerequisite(s): ADMM2252 or HITM2234 or HITM2245

ADMM2264 Auditing the Medical Record-Facility 2 2/0/0
This course will teach students the essential steps of facility auditing practices through case studies. Student will develop tools, templates, policies and procedures needed to establish a quality facility audit.
Prerequisite(s): ADMM2154

ADMM2266 Auditing Medical Record- Evaluation Management Services 3 3/0/0
This course will teach students the essential steps of evaluation and management auditing practices through case studies. Student will develop tools, templates, policies and procedures needed to establish a quality evaluation and management audit.
Prerequisite(s): ADMM2252 or HITM2234 or HITM2245

ADMM2270 Medical Office Simulation 2 1/1/0
This course is a capstone experience for students enrolled in a medical administrative program. Medical office responsibilities such as appointment scheduling, registration, health information management and billing and financial operations are included in this project-based course. This course should be taken in the last semester prior to graduation as students will employ skills mastered over the course of their program enrollment in this experience. Students will develop 10-key skills necessary for billing and insurance practices in a medical office. In addition, students will complete a resume and will practice interviewing techniques.
Prerequisite(s): ADMM1122; **Pre/Corequisite(s):** ADMM1150

ADMM2280 Compliance Plan Development 3 3/0/0
Students will develop a corporate compliance plan as these are seen as an effective mechanism to assure compliance with regulations and minimize the risk of fraud and abuse in the healthcare setting. The plan will encompass risk assessment, auditing policies and procedures, monitoring, training and education.
Prerequisite(s): None

ADMM2282 Compliance Plan Presentations 3 3/0/0
This course will focus on compiling audit results in various healthcare settings and developing effective methods of proper presentation to providers, management and other health care personnel.
Prerequisite(s): ADMM2280

ADMM2290 Medical Administrative Internship 3 0/0/3
This course provides the medical secretary student with practical occupational experience in a health care-related facility. Each internship is an individualized experience. Each student prepares a training plan in conjunction with the training site to provide guided experiences related to the skills and knowledge acquired in the medical secretary program.
Prerequisite(s): Advisor approval

ADMS0090 Basic Keyboarding 1 0/1/0
Basic keyboarding techniques are developed through the use of the computer. Emphasis is on touch keyboarding alphabetic, numeric, punctuation, function and service keys. Computer operating techniques and skill developments are included. Formatting and proofreading skills are introduced.
Prerequisite(s): None

ADMS1100 Keyboarding I 3 1/2/0
This course covers the development of keyboarding and formatting techniques. Emphasis is on building speed and accuracy in the operation of the alphabetic, numeric, symbol and service keys and in introducing document formatting concepts. Proofreading skills are stressed.
Prerequisite(s): None

ADMS1102 Keyboarding II 3 1/2/0
This course covers the development of formatting and text editing techniques. Emphasis is on building speed and accuracy in the operation of the alpha, numeric, symbol and service keys and in developing text editing concept, critical thinking and decision making. Proofreading skills are stressed.
Prerequisite(s): ADMS1100

ADMS1104 Skillbuilding 1 0/1/0
This course is designed to increase keyboarding speed and improve accuracy through personal goal setting, error analysis and intensive corrective practice work.
Prerequisite(s): None

ADMS1108 Data Entry 3 1/2/0
This course introduces the basic principles and techniques of operating data entry equipment. The course also develops a skill level proficiency in data entry.
Prerequisite(s): None

ADMS1110 Word Processing 3 2/1/0
This course gives students an in-depth understanding of the word processing techniques needed to facilitate the production, documentation, storage and relay of information. The course will stress increased proficiency in the computer production of a variety of business documents.
Prerequisite(s): None

ADMS1112 Desktop Publishing 3 1/2/0
This course introduces the concepts, terminology, techniques and applications of desktop publishing and incorporates advanced document processing skills. The student develops skills in critical thinking, decision making and creativity. In addition, the student will reinforce collaborative learning in planning, designing and evaluating business documents.
Prerequisite(s): None

ADMS1116 Business Communications I 3 2/1/0
This course covers composing, editing and proofreading memos, letters and other business documents. The principles of grammar, punctuation, spelling and word use are developed and applied. The application of teamwork and critical thinking skills is included in the course.
Prerequisite(s): ENGL0050 or appropriate placement test score

ADMS1120 Office Procedures 3 2/1/0
This course covers procedures relevant to a traditional office and new procedures relevant to an electronic automated office. Topics may include work organization, time management, ergonomics, scheduling, organizing meetings, processing mail, telephone procedures and arranging travel. The course also provides the student with an in-depth exposure to the role and responsibilities of a receptionist.
Prerequisite(s): None

ADMS1122 Machine Transcription 2 0/2/0
This course covers skill development in transcribing machine-dictated material into business documents. Emphasis is placed on building transcription speed and accuracy; applying punctuation, grammar and spelling rules; using reference materials; proofreading; correcting errors; and efficiently utilizing equipment and software.
Prerequisite(s): ADMS1100, ADMS1116

ADMS1124 Proofreading/Editing 2 1/1/0
This course provides instruction and practice to improve proofreading and editing skills. Students detect and correct errors in capitalization, content, format, grammar, keyboarding, number usage, punctuation, spelling, word division and word usage. Students use standard revision and editing symbols to edit for clarity and conciseness.
Prerequisite(s): None

ADMS1128 Records/Database Mgmt 3 2/1/0
This course is an introduction to the procedures and rules for indexing and storing documents in alphabetic, numeric, geographic, subject and chronological systems. It also includes an introduction to the procedures for managing document/records storage systems. Applications include electronic storage and retrieval using database software for microcomputers.
Prerequisite(s): None

ADMS1130 Intermediate Software Skills 3 2/1/0
This course is designed to provide the student with intermediate skills in spreadsheets, database and Outlook as used in the office environment. This is a follow-up course to Introduction to Computers. Topics include applying document formatting, managing workbooks/worksheets, demonstrating importing and exporting of data, refining queries, generating forms and reports, organizing items using folders, customizing calendar settings, scheduling meetings and appointments and creating group/distribution lists.
Prerequisite(s): CPTR1104

ADMS1140 Internship 2 0/0/2
This course is designed to provide the student with a purposeful occupational experience in the Administrative Support Careers field. Each internship is an individualized experience. A training plan is created for each student in conjunction with the training site to provide experience related to the skills and knowledge acquired in the program.
Prerequisite(s): None

ADMS1142 Career Internship I 2 0/0/2
This is a career enrichment course designed to give students an in-depth understanding of professional employment expectations and opportunities. This course will emphasize the expectations career professionals face in today's workplace regarding interpersonal communication, decision-making, ethical behavior, policies, professional conduct, project completion, team building and time and resource management. Students will use course concepts and skills to complete a professional project in their area of career interest.
Prerequisite(s): An entering student should be able to create various type-written documents and papers

ADMS1150 Intro to Windows 1 0/1/0
This course covers basic information about computer hardware and software and the use of Windows operating environment for application packages.
Prerequisite(s): None

ADMS1152 Intro to Word Processing 1 0/1/0
This course covers the operation of the personal computer hardware and the use of a word processing application to perform word processing functions.
Prerequisite(s): None

ADMS1154 Intro to Spreadsheets 1 0/1/0
This course covers the operation of the personal computer hardware and the use of the spreadsheet software.
Prerequisite(s): None

ADMS1156 Intro to Database 1 0/1/0
This course covers the operation of the personal computer hardware and the use of database software.
Prerequisite(s): None

ADMS1158 Intro to Presentation Software 1 0/1/0
This course covers the operation of the personal computer hardware and the use of presentation software.
Prerequisite(s): None

ADMS1160 Intro to Internet 1 0/1/0
The purpose of this course is to teach the fundamentals of how the World Wide Web works. Students will learn to use an Internet browser to browse Web pages, understand Web page management techniques, save and print material obtained from a Web site and communicate with others on the Web.
Prerequisite(s): None

ADMS1162 Intro Desktop Publishing 1 0/1/0
This course introduces the concepts, terminology, techniques and applications of desktop publishing.
Prerequisite(s): None

ADMS2124 Computer Technology Information 3 2/1/0
This course provides instruction on advanced microcomputer techniques. Topics include file transfer options, malicious program items, management techniques, networking and security, data communications and software evaluation, selection and installation.
Pre/corequisite(s): CPTR1104

ADMS2202 Advanced Word Processing 3 2/1/0
This course will provide students who have attained a basic understanding of word processing software with a more in-depth knowledge of the product. Students will work with more complicated projects that incorporate many of the upper level skills required at this level.
Prerequisite(s): ADMS1110

ADMS2212 Integrated Software Applications 3 2/1/0
This course demonstrates the use of a centralized computer system for both actual and simulated business applications. Areas covered include electronic files, electronic mail, files management, system management, personnel management, supervisory applications, calendar and time management, communications, microcomputer applications and other daily activities that are experienced in the office work setting.
Prerequisite(s): CPTR1104; and ADMS1100 or ADMS1110

ADMS2216 Business Communications II 3 2/1/0
This course is designed to advance the student's knowledge of formatting and editing techniques for business writing. It will provide an in-depth concentration on reviewing and/or further develop memos, letters and a wide variety of other business documents and review of ongoing practical applications of grammar, word and language mechanics. This course will also advance the student's knowledge of proofreading, editing and revising techniques for business writing in diverse business situations. Teamwork and critical thinking skills will also be included in this course.
Prerequisite(s): ADMS1116

ADMS2218 Presentation Applic (PPt) 1 0/1/0
This course covers applications of presentation software using the personal computer. Topics include custom formatting, animation, hyperlinks, Web pages, linking and embedding objects and interactive presentations.
Prerequisite(s): None

ADMS2222 Adv Desktop Publishing 3 1/2/0
This course expands on the concepts and applications developed in the introductory Desktop Publishing class. The student will develop advanced skills in all aspects of Desktop Publishing, including the development of Web pages.
Prerequisite(s): ADMS1112

ADMS2240 Internship 3 0/0/3
This course is designed to provide the student with a purposeful occupational experience in the administrative support careers field. Each internship is an individualized experience. A training plan is created for each student in conjunction with the training site to provide experience related to the skills and knowledge acquired in the program.
Prerequisite(s): None

ADMT1173 Microsoft Office Access Certification 1 0/1/0
This course prepares participants to sit for the Microsoft Office Access MCAS (Microsoft Certified Application Specialist) certification. Class outcomes are aligned with certification objectives. Exam objectives are categories of examination tasks, identified by subject-matter experts that certify an ability to productively use Microsoft Office programs. These categories are organized into skill sets representing the more basic functions of each Office program.
Prerequisite(s): CPTR1104

ADMT1174 Microsoft Office PowerPoint Certification 1 0/1/0
This course prepares participants to sit for the Microsoft PowerPoint certification (Microsoft Office certification). Class outcomes are aligned with certification objectives. Exam objectives are categories of examination tasks, identified by subject-matter experts that certify an ability to productively use Microsoft Office programs.
Prerequisite(s): CPTR1104

ADMT2222 Event Planning 2 2/0/0
This course explores the principles and practices involved in planning and administrating a special business event. Topics will include differentiating the various types of business events, analyzing the process and procedures necessary to plan an event, identifying the various resources needed to organize an event and venue selection criteria.
Prerequisite(s): None

ADMT2224 Applied Event Management 1 0/1/0
Prerequisite: ADMT2222. Students in this course will apply classroom and textbook principles by collaborating with other business students and faculty to plan, promote and execute an authentic event on campus, working with area businesses and organizations.
Prerequisite(s): ADMT2222

ADMT2230 Administrative Project Management 2 1/1/0
Project management is a powerful set of tools and practices that provide a systematic approach to planning, organizing, controlling and leading a project to successful completion. This course guides you through a step-by-step process for managing projects from the initial planning stage to final completion and evaluation. It combines hands-on training in Microsoft Project with in-depth discussions of the underlying principles and practices of project management.
Prerequisite(s): CPTR1104

ADMT2232 Event Management 3 1/2/0
This course explores the principles and practices involved in planning and administrating a special business event. Topics will include differentiating the various types of business events, analyzing the process and procedures necessary to plan an event, identifying the various resources needed to organize an event and venue selection criteria. Students in this course will apply classroom and textbook principles by collaborating with Sales and Marketing students and faculty to plan, promote and execute an authentic event on campus, working with area businesses and organizations.
Prerequisite(s): CPTR1104

AMST1102 Alignment and Suspension I 3 1/2/0
This course teaches suspension systems using leaf springs, coil springs, MacPherson struts, torsion bars and wheel balance. It also covers the principles of operation, disassembly, checks and adjustments of power and manual steering gears and manual and power rack and pinion systems. This course also teaches the procedures required to check and adjust wheel alignment angles such as castor, camber and toe on various suspension systems.
Prerequisite(s): TRNS1102

AMST1105 Brakes I 3 1/2/0
This course teaches principles of brakes, hydraulic system fundamentals, disc and drum brakes, parking brakes and power assist units. Emphasis is placed on operation, diagnosis and repair of various types of brake systems. Anti-lock brake systems with electronic control systems are also covered.
Prerequisite(s): TRNS1102

AMST1109 Starting and Charging 3 2/1/0
This course covers the service procedures required to diagnose and repair the electrical and mechanical systems and components. Electrical and electronic theories and principles are applied to trouble shooting complete circuits and components. Fundamental component rebuilding and analysis are performed. Electrical safety, battery testing, starting and charging systems are covered.
Prerequisite(s): AMST1111

AMST1111 Automotive Electronics 3 2/1/0
This course provides preparation for all the electronic and computer courses which follow. Electrical and electronic theories, operation of electrical circuits and components, conductors, semi-conductors, transistors, diodes, light emitting diodes and fluorescent displays are addressed. Test instruments and meters are used throughout all instruction and testing.
Prerequisite(s): None

AMST1114 Basic Maintenance Service 1 1/0/0
This course will provide the introduction to basic vehicle maintenance to include identification of service points and procedures required for maintenance. Fluid types, brake inspection, tire rotation and service information will be addressed.
Prerequisite(s): None

AMST1116 General Automotive Service 5 3/2/0
This course will involve concepts and hands-on application from multiple areas of auto repair. Included will be small areas of brakes, electrical, starting and charging systems and tune–up. This course provides basic system repair knowledge of service that is performed in a maintenance environment.
Prerequisite(s): None

AMST1122 Engines I 3 2/1/0
This course covers the fundamentals of internal combustion engine operation, repair and maintenance. The procedures for removal, replacement, diagnosing, rebuilding and assembly are presented. Proper tool and equipment application and failure diagnosis are emphasized in this course.
Prerequisite(s): None

Course #	CourseTitle	CR	Lec/Lab/OJT

AMST1126 Engines II 3 1/2/0
This course covers the disassembly, diagnosis, measurement, service, assembly and adjustment of engines and components. Cylinder head, valve train, cylinder block assemblies, cooling and lubrication systems are thoroughly covered.
Prerequisite(s): AMST1122

AMST1132 Drive Trains I 3 2/1/0
This course covers clutch, manual transmission, final drive and transfer case systems. Clutch and transmission diagnosis and service procedures involve the theories and application of components. Vehicle noise, vibration and harshness are also addressed.
Prerequisite(s): TRNS1102

AMST1136 Drive Trains II 3 1/2/0
This course covers drive axles, drive shafts, front and rear wheel bearing and analysis of vehicle noise vibration and harshness. Theory, service skills and diagnosis are covered on bench and in-vehicle units. Drive line phasing, alignment and balance are covered.
Prerequisite(s): None

AMST1190 Upper Engine Service Lab 2 0/2/0
This course covers service inspection and repair of the engine upper components. Students will perform lab projects and customer service repairs as related to industry procedures and standards.
Prerequisite(s): TRNS1102

AMST1192 Auto Transmission Srv Lab 2 0/2/0
This course will address service procedures for automatic transmission. In-car and out-of -car diagnosis and service will be performed. This is a lab performance course.
Prerequisite(s): TRNS1102

AMST1194 Adv Clutch/Drive Line Lab 2 0/2/0
This course is a lab course in which the student will build proficiency in clutch and drive line service skills introduced in previous drive line and transmission service courses. Students will perform production work to increase flat rate efficiency.
Prerequisite(s): TRNS1102

AMST1196 Adv Brake Service Lab 2 0/2/0
This course applies the principles, techniques and service procedures of e modern brakes system services. Hydraulic system analysis, diagnosis and service will be practiced. Anti-lock braking systems diagnosis, analysis of operation and service of electronic controls are also covered.
Prerequisite(s): TRNS1102

AMST1198 Adv Transfer Case Lab 2 0/2/0
This course is a lab course in which the student will build proficiency in 4X4 transfer case service skills introduced in previous drive train service course. Students will perform production work to increase ability to perform closer to flat rate efficiency.
Prerequisite(s): TRNS1102

AMST2201 Alignment and Suspension II 3 2/1/0
This course covers steering column, manual steering and rack and pinion gears, power steering gears and pumps, additional four wheel alignment and supplemental restraint safety components. Students will use scan tools to diagnose and bleed power steering systems and check four wheel steer systems.
Prerequisite(s): AMST1102

AMST2206 Body Elec/Mechanical I 3 1/2/0
This course teaches diagnosis and repair of interior and exterior lighting, safety devices, comfort systems and door, window and seat control systems. The student will use wiring diagrams to pinpoint body electrical problems and troubles. Window, door and seat control service will be performed. Common vehicle accessories will be addressed.
Prerequisite(s): None

AMST2209 Body Elec/Mechanical II 3 1/2/0
This course focuses on computer controlled body components and safety systems. Scan tool diagnostics will be intense and focus on accessories and creature comfort units. Power windows, sun roof, remote mirrors, heated glass, heated seats and running lights are some of the systems addressed.
Prerequisite(s): AMST2206

AMST2211 Exhaust Analysis Fuel Sys 3 2/1/0
This course focuses on the fuel delivery systems on today's fuel injected vehicles. Diagnosis, repair and non start are covered using the latest scan tools and factory tools for fuel system repair.
Prerequisite(s): AMST1111

AMST2214 Elec Powertrain Cntrl I 3 2/1/0
This course will cover the introduction to vehicle computer systems and related components that assist in the management of engine fuel, ignition and emission systems. Introduction to sensor inputs, management operation and operational commands are addressed.
Prerequisite(s): AMST2211, AMST2220

AMST2218 Elec Powertrain Cntrl II 3 1/2/0
This course will study the many electronic control systems used on today's passenger cars and light trucks. Examples: fuel injection, distributorless ignition, transmission controls, emission controls and the new second generation OBD-II strategy.
Prerequisite(s): AMST2214

Course #	CourseTitle	CR	Lec/Lab/OJT

AMST2220 Ignition Systems 3 2/1/0
This course will take you from electronic distributors to coil pack and through the latest coil on plug multi firing systems. Circuits, timing controls, sensors and no start diagnosis will give you all the spark you would care for.
Prerequisite(s): AMST1111

AMST2224 Auto Service Tech Intern 2 0/0/2
This course is designed by the student and advisor in cooperation with industry to provide an on-the-job training experience for the student. The student will prepare an internship plan consistent with 96 hours of internship time. The plan should reflect the internship site, student knowledge, prior coursework and skills. This course will provide the student with an opportunity to integrate the skills, knowledge and concepts gained in previous coursework into an occupational experience.
Prerequisite(s): TRNS1102

AMST2225 Brakes II 3 2/1/0
A step up from our Brakes I course will look at progression of anti-lock brake systems and the many manufacturer variations of these systems. Operation, diagnostics, service and bleeding processes will be addressed. Students will use scan tool diagnostic routines and circuit analysis in verifying operation. Traction control inputs and functions will be covered.
Prerequisite(s): AMST1105, AMST1111

AMST2226 Auto Service Tech Intern 3 0/0/3
This course is designed by the student and advisor in cooperation with industry to provide an on-the-job training experience for the student. The student will prepare an internship plan consistent with 144 hours of internship time. The plan should reflect the internship site, student knowledge, prior coursework and skills. This course will provide the student with an opportunity to integrate the skills, knowledge and concepts gained in previous coursework into an occupational experience.
Prerequisite(s): TRNS1102

AMST2228 Auto Service Tech Intern 4 0/0/4
This course is designed by the student and advisor in cooperation with industry to provide an on-the-job training experience for the student. The student will prepare an internship plan consistent with 192 hours of internship time. The plan should reflect the internship site, student knowledge, prior coursework and skills. This course will provide the student with an opportunity to integrate the skills, knowledge and concepts gained in previous coursework into an occupational experience.
Prerequisite(s): TRNS1102

AMST2232 Auto Independent Study Lab 1 0/1/0
This course is designed by the student and the instructor to provide an opportunity for the student to gain proficiency in selected competency areas and integrate the skills, knowledge and concepts gained in previous coursework. The student, with instructor approval, will prepare a Lab Activity Plan consistent with 32 hours of lab time. The plan should reflect the following course goals, student knowledge, prior coursework and student skill level. The student will complete a Daily Activity Lab worksheet that will represent work completed and prepare a Lab Activities Outcomes worksheet to determine student efforts and success at completing the Lab Activity Plan and the course.
Prerequisite(s): TRNS1102

AMST2233 Auto Transmission I 3 2/1/0
This course will provide the principles of many systems combined into an automatic transmission. Planetary gearing, wet clutch operation, hydraulic controls, torque application, braking action, friction and anti-friction and one-way clutching will combined in a systematic process to make this service work challenging and rewarding.
Prerequisite(s): TRNS1102

AMST2234 Auto Independent Study Lab 2 0/2/0
This course is designed by the student and the instructor to provide an opportunity for the student to gain proficiency in selected competency areas and integrate the skills, knowledge and concepts gained in previous coursework. The student, with instructor approval, will prepare a Lab Activity Plan consistent with 64 hours of lab time. The plan should reflect the following course goals, student knowledge, prior coursework and student skill level. The student will complete a Daily Activity Lab worksheet that will represent work completed and prepare a Lab Activities Outcomes worksheet to determine student efforts and success at completing the Lab Activity Plan and the course.
Prerequisite(s): TRNS1102

AMST2236 Auto Independent Study Lab 3 0/3/0
This course is designed by the student and the instructor to provide an opportunity for the student to gain proficiency in selected competency areas and integrate the skills, knowledge and concepts gained in previous coursework. The student, with instructor approval, will prepare a Lab Activity Plan consistent with 96 hours of lab time. The plan should reflect the following course goals, student knowledge, prior coursework and student skill level. The student will complete a Daily Activity Lab worksheet that will represent work completed and prepare a Lab Activities Outcomes worksheet to determine student efforts and success at completing the Lab Activity Plan and the course.
Prerequisite(s): TRNS1102

AMST2237 Auto Transmission II 3 1/2/0
Students will practice many of the procedures used in transmission diagnoses, in vehicle repair sequences, scan tool data interpretation and diagnosis, transmission removal, installation and adjustment. Cooling system diagnosis and service are also covered.
Prerequisite(s): AMST2233

AMST2238 Auto Independent Study Lab 4 0/4/0
This course is designed by the student and the instructor to provide an opportunity for the student to gain proficiency in selected competency areas and integrate the skills, knowledge and concepts gained in previous coursework. The student, with instructor approval, will prepare a Lab Activity Plan consistent with 128 hours of lab time. The plan should reflect the following course goals, student knowledge, prior coursework and student skill level. The student will complete a Daily Activity Lab worksheet that will represent work completed and prepare a Lab Activities Outcomes worksheet to determine student efforts and success at completing the Lab Activity Plan and the course.
Prerequisite(s): TRNS1102

AMST2240 Heating Ventilation A/C 3 1/2/0
This course teaches the principles of air conditioning and its relationship to the heating and ventilation processes. System types and designs, component variations, diagnosis, testing and repair are studied and practiced on functioning units. Recovery, evacuation, performance testing and charging are practiced.
Prerequisite(s): AMST1111

AMST2250 Certification Exam Prep 2 2/0/0
This course will deal with information to prepare the student for ASE certification examination. Topics covered include areas tested in the ASE Automotive Service Technical master certification exam. This course is appropriate for those seeking initial certification or recertification.
Prerequisite(s): Current Automotive Technician student within two semesters of graduation or occupational experience

AMST2254 Tune-Up Lab 2 0/2/0
This course is a lab course designed to allow students to build their proficiency in the use of the various analyzers and to gain skill in diagnosis of engine problems.
Prerequisite(s): TRNS1102

AMST2256 Brake System Update 1 1/0/0
This course covers information and changes in the brakes systems, improved service procedures, advanced diagnosis and shared service procedures used in the industry.
Prerequisite(s): TRNS1102

AMST2258 Auto Transmission/Axle Update 1 1/0/0
This course covers changes in product and service related to automatic transmissions. New changes and product improvements will be addressed.
Prerequisite(s): TRNS1102

AMST2260 Manual Drive Train and Axles Update 1 1/0/0
This course covers changes and updates in the manual drive train components and changes in service requirements.
Prerequisite(s): TRNS1102

AMST2262 Suspension/Steering Update 1 1/0/0
This course covers information and changes in the suspension and steering systems, improved service procedures and shared service techniques.
Prerequisite(s): TRNS1102

AMST2264 Engines Update 1 1/0/0
This course covers changes and improvements in engine technology and service updates.
Prerequisite(s): TRNS1102

AMST2266 Electrical/Electronics Update 1 1/0/0
This course covers information and changes in the electrical/electronic systems of vehicles and systems used in today's vehicles.
Prerequisite(s): TRNS1102

AMST2282 Supplemental Inflatable Restraint 2 1/1/0
This course covers the theory of operation and troubleshooting procedures of supplemental restraint systems (SRS) used on domestic manufacturers' automobiles and light trucks.
Prerequisite(s): TRNS1102

AMST2284 Chrysler Driveability/Test Proc 3 1/2/0
For engine and fuel system technicians, this course covers fundamentals of current Chrysler fuel injection systems, including the related engine management system. Fuel injection systems covered include throttle body injection (TBI), multiport fuel injection systems (MFI) and central multiport fuel injection systems (CMFI). Course covers system and component operation and diagnosis of the engine management system. In addition, hands-on practice of service procedures, component testing and on-board diagnostics is provided.
Prerequisite(s): TRNS1102

AMST2286 Climate Controls 2 1/1/0
This course covers theory and operation of automatic temperature control systems used in Ford, General Motors and Chrysler passenger cars and light trucks.
Prerequisite(s): TRNS1102

AMST2292 Internship 1 0/0/1
This course is designed by the student and advisor in cooperation with industry to provide an on-the-job training experience for the student. The student will prepare an internship plan consistent with 48 hours of internship time. The plan should reflect the internship site, student knowledge, prior coursework and skills. This course will provide the student with an opportunity to integrate the skills, knowledge and concepts gained in previous coursework into an occupational experience.
Prerequisite(s): None

ANTH1100 Anthropology 3 3/0/0
Meets MnTC Goal Areas 5 and 8. This course is a survey of human nature through time and around the world. It examines the physical nature of our species, archaeology, the study of cultural behavior and linguistic studies.
Prerequisite(s): None

ANTH1200 Medical Anthropology 3 3/0/0
Meets MnTC Goal Areas 5 and 8. This course is an anthropological survey of the study of health, sickness and treatment of disease in a biological and cross-cultural setting.
Prerequisite(s): None

ARCH1112 Architectural Desktop 4 2/2/0
This course covers the development of three-dimensional architectural modeling and documentation using AutoCAD Architectural Desktop software. Emphasis is on creating and editing ObjectARX component styles.
Prerequisite(s): CADD1102, ENGR1132

ARCH1122 CADD for Architecture 4 2/2/0
This course covers the development of three-dimensional architectural modeling and documentation using AutoCAD for Architecture software. Emphasis is on creating and editing Object ARX component styles.
Prerequisite(s): CADD1102, ENGR1132

ARCH1126 Residential Project I 3 1/2/0
This course covers the design development and documentation of single-family living. Students will be introduced to residential design styles as well as proper documentation methods.
Prerequisite(s): ENGR1126, ENGR1132

ARCH2218 Architectural Internship 3 0/0/3
This course provides the student with an occupational experience in the architectural technology field. Each internship is an individualized experience.
Prerequisite(s): ARCH1126

ARCH2226 Residential Project II 4 1/3/0
This course will introduce building design and construction requirements for multi-family housing. The course will cover the processes for the selection of building materials and their integration into construction documents.
Prerequisite(s): ARCH1112, ARCH1126, BLDG1104, BLDG1134

ARCH2230 Mech/Elec Integration 2 1/1/0
This course will review the examination of structural, mechanical, plumbing and electrical systems in buildings. Content will include analysis of structural framing systems, plumbing and HVAC systems and power and lighting systems.
Prerequisite(s): ARCH1112, ARCH1126

ARCH2236 Presentation 2 0/2/0
This course will develop design schematics and a set of presentation drawings for a commercial project. Emphasis will be on verbal and visual presentation techniques.
Prerequisite(s): ARCH1112, ARCH1126

ARCH2244 Commercial Projects 4 1/3/0
This course will cover the construction document process for commercial building design while having the student complete a self-guided capstone project. Content will include final detailing, scheduling and sheet set layout from a given design developed project.
Prerequisite(s): ARCH2226, ARCH2240

ARCH2246 Advanced ADT and Rendering 3 1/2/0
This course provides the advanced use of computer aided drafting and modeling using Architectural Desktop software and its related rendering application. The course will develop CADD configuration skills, advanced modeling techniques and various presentation renderings.
Prerequisite(s): ARCH1112

ARCH2248 CADD Alternatives 3 1/2/0
This course will familiarize the student with computer drafting and modeling software for the graphic design of residential construction.
Prerequisite(s): None

ARCH2250 Project Administration 2 1/1/0
This course provides an understanding of architectural firm structures and legal issues as well as project management procedures used throughout documentation, bidding and construction administration.
Prerequisite(s): ARCH2226

ARCH2256 Rendering Architecture 3 1/2/0
This course provides the advanced use of computer aided drafting and modeling using AutoCAD for Architecture software and its related rendering application. The course will develop CADD configuration skills, advanced modeling techniques and various presentation renderings.
Prerequisite(s): ARCH1112

ART1105 Intercultural Art and Design 3 3/0/0
Meets MNTC Goal Areas 6F and 7. This studio art course is designed to complement a student's overall education by focusing on intercultural awareness, vocabulary, building their art-related technical skills and enhancing their appreciation and understanding of the artistic process.
Prerequisite(s): None

Course #	CourseTitle	CR	Lec/Lab/OJT

ART1107 Foundations of Art, 2-D 3 3/0/0
Meets MNTC Goal Area 6F. This course is an introduction to creative thinking, interpretation and self-expression. Students will explore basic two-dimensional elements and principles through the use of various media, tools, materials and processes. Color theory will be emphasized.
Prerequisite(s): None

ART1108 Foundations of Art, 3-D 3 3/0/0
Meets MNTC Goal Area 6F. Students are introduced to basic three-dimensional concepts as well as a variety of materials and technical processes. Students will create three-dimensional designs that explore form and space.
Prerequisite(s): None

ART1110 Intro to Art 3 3/0/0
Meets MNTC Goal Area 6F. This course provides an introduction to the elements and principals of visual arts and to the creative process. Students are encouraged to use a variety of media in drawing, painting and sculpture.
Prerequisite(s): None

ART1111 Beg Drawing 3 3/0/0
Meets MNTC Goal Area 6F. This course introduces students to basic drawing media and to the visual elements in relationship to drawing. Accurate observation of still-life, nature and the human figure are emphasized.
Prerequisite(s): None

ART1112 Beg Painting 3 3/0/0
Meets MNTC Goal Area 6F. This course introduces students to techniques and visual elements of painting. Students will study contemporary and historical approaches to painting by viewing the work of artists from various periods in art.
Prerequisite(s): ART1111

ART1113 Drawing II 3 3/0/0
Meets MNTC Goal Area 6F. This course focuses on student use and understanding of a variety of drawing media such as pencil, pastel, pen and ink and charcoal. Advanced use of composition and color are emphasized. Subject matter includes still-life, nature drawing and figure drawing.
Prerequisite(s): ART1111

ART1116 Pastel Drawing 3 3/0/0
Meets MNTC Goal Area 6F. Course consists of drawing using pastel materials and media.
Prerequisite(s): None

ART1118 Intro to Watercolor 3 3/0/0
Meets MNTC Goal Area 6F. This course will introduce students to the fundamental principles, techniques and materials of watercolor media. Students will explore color and design concepts, including composition and the elements of art; traditional and experimental approaches with watercolor media; the fundamentals of the critique process; and traditional and contemporary artworks from the visual canon. Personal expression and visual and critical problem solving are major components of this course.
Prerequisite(s): None

ART1121 World of Art I 3 3/0/0
Meets MNTC Goal Areas 6 and 8. This course is a survey of architecture, painting and sculpture and their historical and social context. Specific periods from Prehistoric through the Middle Ages will be introduced.
Prerequisite(s): None

ART1122 World of Art 3 3/0/0
Meets MNTC Goal Areas 6 and 8. The study of the appreciation of art through the study of its history from the Mannerism in the late 1500s to the present modern art forms. Baroque art to present.
Prerequisite(s): None

ART1124 American Art 3 3/0/0
Meets MNTC Goal Areas 6 and 7. This course explores the great variety and depth of North American Art. Native American, Colonial, Latino and Contemporary art are the focus of the course.
Prerequisite(s): None

ART1140 Handbuilt Ceramics 3 3/0/0
Meets MNTC Goal Area 6F. This course will develop the skills of ceramics, focusing on handbuilding. Using the methods of coil, pinching and slab building, the students will make a variety of forms, ranging from functional to sculptural. Students will create finished products, including the use of glaze and other finishes. The nature of handbuilding techniques provide a more immediate opportunity to express creativity.
Prerequisite(s): None

ART1141 Ceramics I 3 3/0/0
Meets MNTC Goal Area 6F. Students learn about pottery tools and their uses, construction methods such as coil and slabs, aspects of pottery form and design, formulation and application of glazes and operation of a ceramic kiln. The course is designed for the novice.
Prerequisite(s): None

ART2241 Advanced Ceramics 3 3/0/0
Meets MNTC Goal Area 6F. This course will build on the skills developed in Ceramics I with emphasis on wheel throwing, glazing and firing techniques.
Prerequisite(s): ART1141

ART2250 Art Mentor Experience 2 0/0/2
Meets MNTC Goal Areas 6F and 2. This course gives art students the opportunity to work side-by-side with professional artists. Students will select an artist mentor, based on the media the student wants to explore; oil painting, pastel, ceramics, metal sculpture. Students will meet with art faculty advisor to identify which mentor best suits them and to create a plan of study for the semester. Special permission is required for this course.
Prerequisite(s): Students must have completed 12 credits of art courses before they can register. Registration is by special arrangement through art faculty or registrar.

ART2260 Art, Portfolio Design and Professional Development1 0/0/1
Meets MNTC Goal Area 6F. Art students will learn how to create a professional portfolio, showcasing their work for transfer or professional purposes. Students will also explore ways to promote themselves as artists, using the lastest technology.
Prerequisite(s): Students must have completed 12 credits of art courses before they can register. Registration is by special arrangement through art faculty or registrar.

ASL1111 ASL and Deaf Culture I 3 3/0/0
This course covers the beginning fundamental principles of American Sign Language and introduces information about the Deaf Community and Deaf Culture. The course will familiarize students with basic ASL vocabulary and grammar, including handshapes, body movements and facial expressions to convey meaning.
Prerequisite(s): DVCM0006 and ENGL0050

ASL1112 ASL and Deaf Culture II 3 3/0/0
This course covers the fundamental principles of Level II American Sign Language and introduces more advanced information about the Deaf Community and Deaf Culture. This course will focus on expanding knowledge and usage of ASL vocabulary including fingerspelling, numbers and classifiers and continue with more complex ASL grammar and sentence structure.
Prerequisite(s): ASL1111

ASL1113 ASL and Deaf Culture III 4 4/0/0
This course is designed to offer continued study of American Sign Language and Deaf Culture. Emphasis will be placed on improvement of speed and fluency along with reinforcement of appropriate grammar usage and conversational skills. This course will also introduce Deaf idioms and their use within Deaf Culture.
Prerequisite(s): ASL1112

ASL1114 ASL and Deaf Culture IV 4 4/0/0
This course, the fourth in a series of American Sign Language (ASL) and Deaf Culture courses, focuses upon the grammatical features of ASL and vocabulary expansion. Content of this course will focus on sentence construction, inflecting verbs and classifiers. Fluency and accuracy of fingerspelling will continue to be developed as well as the use of lexicalized signs and numbering.
Prerequisite(s): ASL1113

AT1120 Assistive Tech I 3 3/0/0
This course will explore the definition of Assistive Technology and the distinction between low and high technology. Examples of situations in which Assistive Technology can be employed will be presented. Historical and future aspects will be taught.
Prerequisite(s): None

ATEC2226 Industrial Automation and Control 4 2/2/0
This course teaches industrial motion control servomechanisms and process control instrumentation systems. The course describes the concepts and the operation of electronic devices, circuits, systems and applications used in industry.
Prerequisite(s): METC1112, METC2222, METC2224

ATEC2238 Quality Planning and Control 3 3/0/0
This is an introductory course surveying quality related topics from both qualitative and quantitative point of views. The course is structured to address the quality system, the management system and the technical system approaches to quality planning and management. Topics related to people, leadership, application, implementation, data collection and analysis and quality standards are included in this course.
Prerequisite(s): None

BIOF1102 Fundamentals of Alternative Energy and Environment II 3 3/0/0
This course explores the relationship between humans and their environment and the energy production methods currently in use and those planned for adoption in the near future. Topics covered include: sources of pollution; waste management and treatment; carbon, nitrogen, sulfur cycle greenhouse effect and global warming; natural resource consumption/management and population growth and the impact of conventional and alternative energy sources and nuclear energy on the environment. Emphasis is placed on understanding current environmental issues from a scientific standpoint.
Prerequisite(s): BIOF1101

BIOL1104 Biology of Human Concerns 3 2/1/0
Meets MNTC Goal Areas 2 and 3. This course explores issues related to human biology with reference to genetics, nutrition, health, disease and other contemporary issues. Elements of molecular, cell and organismal biology are introduced as needed to understand the topics studied. Intended for non-science majors.
Prerequisite(s): None

BIOL1107 Env Science Issues 3 3/0/0
Meets MNTC Goal Areas 2, 3 and 10. Discussion and study of ecosystems, biodiversity, human adaptations to and modifications of those ecosystems and current environmental problems and their possible solutions. Optional lab, BIOL 1108, is available for students needing or wanting the lab experience. This course is for non-science majors.
Prerequisite(s): None

BIOL1108 Env Science Issues Lab 1 0/1/0
Meets MNTC Goal Areas 2, 3 and 10. Laboratory work in conjunction with BIOL 1107 Environmental Science Issues. Laboratory experience may include lab and field exercises, computer simulations and collection and analysis of data related to current environmental issues and their possible solutions. This optional lab must be taken concurrently with BIOL 1107.
Prerequisite(s): Concurrent enrollment in BIOL1107

BIOL1111 General Biology I 4 3/1/0
Meets MNTC Goal Areas 3 and 10. A study of the cellular organization of an organism, its physiology and its genetics. The emphasis on cellular study includes its basic organization, metabolic activities (cellular respiration and photosynthesis), reproductive and heredity. Students will also study organic evolution and ecological interactions. Lab work will include outdoor activities, microscopic work, molecular genetics and genetics principles. The first semester in a 2-course sequence of general biology.
Prerequisite(s): None

BIOL1112 General Biology II 4 3/1/0
Meets MNTC Goal Areas 2 and 3. A study of the entire animal organism with special emphasis on systems and requirements for life. The emphasis is comparing animal systems. the study of plants examining transport, reproduction and growth. Lab work will include animal dissection and comparative anatomy and physiology. Plant lab work will involve plant systems. The second semester in a 2-course sequence of general biology.
Prerequisite(s): None

BIOL1115 Introduction to Biotechnology 3 3/0/0
Meets MNTC Goal Area 3. This course is designed to acquaint students with the field of biotechnology including historical development, current technologies and future trends. An overview of the molecular and genetic principles and processes used to manipulate living organisms and their products will be presented, as well as forensic, medical, agricultural and industrial applications. The course will also examine the ethical implications of biotechnology and genetic engineering.
Prerequisite(s): None

BIOL1125 Basic Immunology 2 2/0/0
For MLT students and other health professionals. Principles of antigens and antibodies and their combination in health, disease and serological laboratory procedures. Includes diseases of hepatitis, AIDS, lupus, rheumatoid arthritis, Lyme disease, syphilis, infections, mono and streptococcal infection.
Prerequisite(s): None

BIOL1152 Food Science 3 3/0/0
Meets MNTC Goal Areas 3 and 9. This course addresses the use of public policy and food technology to reduce or control risks in our food supply. An overview of microbiological, chemical and environmental risks will be presented, as well as government and industry controls used to ensure food safety.
Prerequisite(s): None

BIOL1161 Intro to Freshwater Biology 3 2/1/0
Meets MNTC Goal Areas 3 and 10. This course introduces students to basic principles of freshwater biology. Topics include the origins and features of basins and channels, the aquatic environment, basic water chemistry, aquatic organisms and aquatic ecology. Class includes a lab.
Prerequisite(s): An entering student should be able to read and actively comprehend college-level material

BIOL2010 General Ecology 4 3/1/0
Meets MNTC Goal Areas 3 and 10. A study of the structure and function of ecological systems, including an application of ecological principles to local and global environmental issues. Topics covered are energy flow, nutrient cycling, organization, ecological succession, population dynamics (ecology of species interactions, factors that influence and regulate population numbers) and linkages among species and ecosystem functions. Lecture is accompanied by laboratory and field exercises.
Prerequisite(s): College level reading and writing scores, BIOL1111, BIOL1112, MATH1213,

BIOL2202 Principles Nutrition 3 3/0/0
Meets MNTC Goal Areas 2 and 3. A study of the fundamental principles of nutrition. The course will cover food composition, diet planning, utilization of food nutrients in the body and the requirements for nutrients in infancy, childhood, teen years, athletes, adults and the elderly. Also included are discussions about current trends in nutrition, the relationship of diet and disease and cultural differences in dietary practices. Students will apply the basic principles of nutrition through a study in diet analysis.
Prerequisite(s): CHEM1100 or 1111 or equivalent; or BIOL1111 or 2230 or equivalent; or instructor permission

BIOL2220 General Microbiology 4 3/1/0
Meets MNTC Goal Area 3. This course will provide an overview of the structure and function of microorganisms, including archaea, bacteria, viruses, fungi and parasites. Students will examine the molecular diversity, genetics, physiology and ecology of these organisms in relation to microbial evolution, industrial and applied applications and host-pathogen interactions. Lecture is accompanied by laboratory experiences, including aseptic technique, differential staining procedures, cultural and physical characteristics, biochemical testing, microbial control, microbiology of water and soil and identification of unknown cultures.
Prerequisite(s): None

BIOL2230 Human Anatomy and Phys I 3 2/1/0
Meets MNTC Goal Area 3. A comprehensive, introductory overview of human anatomy and physiology that includes basic fundamental concepts of cell biology and tissues and organs making up the integumentary, skeletal, muscular and nervous systems. This course is the first of a two-semester sequence in which anatomy and physiology are studied with an emphasis on structure and functions of systems. Lecture and laboratory.
Prerequisite(s): None

BIOL2232 Human Anatomy and Phys II 3 2/1/0
Meets MNTC Goal Area 3. A continuation of Anatomy and Physiology I that includes the study of cells, tissues and organs making up the endocrine, cardiovascular, lymphatic, immune, respiratory, digestive, urinary and reproductive systems. Emphasis is on structure and function of systems. Lecture and laboratory.
Prerequisite(s): BIOL2230

BIOL2240 Genetics 4 3/1/0
Meets MNTC Goal Area 3. A study of the basic of heredity with emphasis on modern molecular and classical Mendelian genetics. This course is open to all students, but is recommended for students majoring in biology and health-related areas. Lecture and laboratory. The laboratory will include molecular and classical genetic techniques.
Prerequisite(s): BIOl1111 and CHEM1100, 1101, 1107 or 1111

BIOL2245 Molecular and Field Ecology 3 2/1/0
Meets MNTC Goal Areas 2, 3 and 10. Students will gain experience in methods for the collection, analysis (including molecular techniques) and presentation of data that addresses fundamental questions concerning the interrelationships of organisms with their environment.
Prerequisite(s): One of the following: Biol. 1104: Biology of Human Concerns, Biol. 1107: Environmental Science Issues, Biol. 1111 or 1112: General Biology I or II, Biol. 2230, or 2232; Human Anatomy and Physiology I or II, Biol. 2257: Medical Microbiology, Nano 2207: Nanotechnology.

BIOL2257 Medical Microbiology 3 2/1/0
Meets MNTC Goal Area 3. Study of structure and classification of bacteria, viruses, parasites and fungi of medical importance. Emphasis in transmission of disease agents, signs and symptoms of disease, immunization, control of microbial growth, specimen collection/transport and methods of identification. Integrated lab includes basic techniques of culture, staining, biochemical testing and identification of known and unknown bacterial specimens and identification of fungi and parasites from prepared slides. Two hours lecture, one 2-hour lab per week.
Prerequisite(s): College-level reading and writing skills

BIOL2266 Diagnostic Microbiology 5 4/1/0
Meets MNTC Goal Area 3. Study of microorganisms of medical importance in relationship to disease and diagnosis, emphasizing identification of bacteria in patient specimens, specimen collection, antimicrobial susceptibility testing and introducing virology, mycology, parasitology and immunology. Laboratory covers basic techniques of identification of normal flora, pathogenic bacteria, fungi, parasites, including morphology, classification and cultivation of bacteria. Each student will be required to identify bacterial unknowns in broth. Four hours lecture and one (2 hour) laboratory per week.
Prerequisite(s): College level placement in reading and writing

BIOT2210 Biotechnology Methods I 3 3/0/0
The first semester of a two-semester sequence of courses designed to train laboratory technicians in the fundamental technologies, procedures and processes utilized in the biotechnology industry. The course will emphasize technical skills development, record keeping and communication skills, compliance with federal regulations and conformity to cGMP/cGLP standards. The course will meet for one hour of lecture and four hours of lab each week.
Prerequisite(s): NANO2205, CHEM1111

BIOT2220 Biotechnology Methods II 3 3/0/0
Biotechnology Methods II is the second semester of a two-semester sequence of courses designed to train laboratory technicians in the fundamental technologies, procedures and processes utilized within the biotechnology industry. The course will emphasize technical skills development, record keeping and communication skills, compliance with federal regulations and conformity to cGMP/cGLP standards. The course will meet for one hour of lecture and four hours of lab each week.
Prerequisite(s): BIOT2210

BIOT2230 Fundamentals of Bioprocessing 3 3/0/0
This course is designed to train laboratory technicians in the fundamental technologies, procedures and processes utilized in the biotechnology industry to manufacture biologically-derived products. This course will emphasize the basic science, cellular metabolism and growth techniques used in the industry, examples of bioprocessed products currently on the mark, conformity to cGMP/GLP standards and compliance with federal regulations.
Prerequisite(s): BIOT2210, BIOT2220

BLDG1102 Construction Safety 1 1/0/0
This course provides students with an understanding of occupational safety practices, basic requirements, purpose and enforcement of general safety rules.
Prerequisite(s): None

BLDG1104 Building Codes 2 2/0/0
This course will familiarize the student with the various building codes with an emphasis on how understanding and interpretation affects building design and construction.
Prerequisite(s): None

Course #	CourseTitle	CR	Lec/Lab/OJT

BLDG1110 Princ of Residential and Commercial Construction 3 1/2/0
Students will work side-by-side with industry and education professionals, learning about occupations, tools, safety requirements and skills required for satisfying and well-paying careers. They participate in classroom and hands-on learning, with the opportunity to experience first-hand how residential and commercial buildings are constructed.
Prerequisite(s): None

BLDG1114 Blueprint Reading I 2 2/0/0
This course provides the student with a working knowledge of blueprints and specifications. The student gains an understanding of blueprints, then interprets and applies this knowledge to job situations.
Prerequisite(s): None

BLDG1120 Construction Estimating I 2 1/1/0
This course covers the mathematical procedures used in material estimating and completing quantity takeoffs for building projects.
Prerequisite(s): None

BLDG1122 Construction Estimating II 2 1/1/0
This course covers material and labor estimating which make up the primary portion of a construction bid package. These procedures are used to prepare and complete accurate bids for construction projects of all sizes.
Prerequisite(s): BLDG1120

BLDG2214 Blueprint Reading II 2 1/1/0
This course develops skills in reading plans and specifications used in building different types of structures including residential and commercial projects.
Prerequisite(s): BLDG1114

BLDG2240 Estimating Methods II 2 1/1/0
This course covers the calculation of commercial material quantities as well as material and labor cost analysis. Content will include cost calculations of buildings through area and volume system analysis as well as detailed material quantity estimates.
Prerequisite(s): BLDG1134, BLDG1140

BMGT1102 Prep Small Bus Mgmt/Ownership 3 3/0/0
This course is designed to define small business and its importance in the free enterprise system. Students are introduced to start-up and buyout opportunities, financial planning and legal forms of ownership.
Prerequisite(s): None

BMGT1104 Research Methods 3 2/1/0
This course covers basic research principles and procedures that are necessary for managers to effectively manage their organizations. Topics covered include basic sampling techniques, survey methods and data collection, data analysis, basic statistical methods and formulation of conclusions. The student will also be required to document and present findings.
Prerequisite(s): None

BMGT1108 Organizational Mmgt 3 2/1/0
An introduction to how managers coordinate human and material resources to achieve organizational goals. Effective management skills can be applied to both retail and service organizations.
Prerequisite(s): None

BMGT1110 Financ Statement Analysis 2 0/2/0
This course describes the content and purpose of financial statements. Students will learn the skills needed to create and analyze financial statements. How income statements and balance sheets are used to make management decisions in both retail and service business settings will be examined.
Prerequisite(s): None

BMGT1112 Business Plan Dvlpmnt 2 0/2/0
Through the use of the computer, students will have hands-on training in developing a business plan for their own business idea. Financial statement analysis, risk management, business law and understanding the business environment will all become a part of the business plan.
Prerequisite(s): None

BMGT1114 Internship 3 0/0/3
The methods and techniques of leadership and supervision and their applications are emphasized in this course. The content covers such topics as delegation, motivation, training, orienting, evaluating and effectively increasing productivity.
Prerequisite(s): None

BUS1132 Desktop Publishing 3 2/1/0
This course is designed to introduce students to microcomputer desktop publishing systems. The student will use the microcomputer as a tool to create publications for the home or office. The course will use various software programs such as image enhancement software, scanner software, web publishing, etc., in addition to the desktop publishing program. The student will work on individual projects throughout the course and work on a final group project as a whole class.
Prerequisite(s): None

BUS1141 Intro to Business 3 3/0/0
Course is designed to give the student an overview of the business and economic factors that sustain our American enterprise system. Topics included are economic systems and the foundations of American business, international business, fundamentals, management, forms of a business enterprise including franchises, human resources management, marketing and consumer behavior, accounting, securities markets and the ethical and social responsibilities of business.
Prerequisite(s): None

BUS1143 Office Procedures 3 3/0/0
This is a capstone course in office organization, business ethics and responsibilities of office workers. Emphasis is placed on decision-making ability and the exercise of good human behavior. The course will cover all aspects of the office, from behavior to technologies used. This course will also cover what it means to be a professional in any field. Group dynamics as well as looking like a professional are just two of the topics covered.
Prerequisite(s): None

BUS1146 Personal Finance 3 3/0/0
An introduction to personal financial management and planning. Topics include key factors that affect personal income, budgeting, cash-flow management, use of credit and credit cards, planned borrowing, managing taxes, major expenditures including housing, automobiles, insurance and investments.
Prerequisite(s): None

BUS1158 Free Mkt Enterprise 2 2/0/0
Students who successfully complete the assigned projects as members of Students in Free Enterprise (SIFE) may register for this course.
Prerequisite(s): Instructor approval

BUS1170 Intro to Agribusiness, Food Systems and Global Agriculture 3 3/0/0
This course is an introduction to the economic environment of the agribusiness sectors of our economy. We will examine the role agriculture plays in the U.S. and global economies. Concepts to be examined include but are not limited to management of agribusiness, marketing of agribusiness, finance of agribusiness and government involvement in agriculture and agribusiness.
Prerequisite(s): None

BUS2150 Legal Environ of Business 3 3/0/0
An overview which provides an introduction to what every educated citizen should know about the law and the American legal system. Major content areas include the court system, trial process, alternative dispute resolution, business and the Constitution, the administrative process, torts and product liability, common law of contracts, employment law, employment discrimination, anti-trust law, international business and ethics.
Prerequisite(s): None

BUS2202 Mgmt Information Sys 3 3/0/0
A survey course of Management Information Systems. An information system is a set of interrelated components working together to collect, retrieve, process, store and disseminate information for purposes of facilitating, planning and decision-making in business and other organizations. The student will gain invaluable knowledge as to how a business solves problems using an information system.
Prerequisite(s): None

BUS2204 Principles of Management 3 3/0/0
This course represents a study of the basic principles of business management, to include the functional, scientific, behavioral and systems approaches. Current literature, concepts, models and applications will be included as well as the use of case studies.
Prerequisite(s): None

BUS2206 Principles of Marketing 3 3/0/0
This course is an introductory study of marketing as an important element of our economy. This course will include the nature and significance of marketing, both consumer and industrial marketing. The marketing mix, market segmentation, target market identification, the product, channels of distribution and pricing systems.
Prerequisite(s): None

BUS2220 Global Business 3 3/0/0
This course will introduce the student to business operations surrounding global trade and identify interconnected issues. Businesses are increasingly challenged by multinational corporations, international trade policies, cultural and religious differences, environmental movements and human rights groups which often play a leading role in defining and framing the global agenda. Understanding why nations do business with each other, how communication plays a vital role, what cultural features influence business practices, how competitive dynamics affect organizations and what legal considerations must be followed will prepare students for a rapidly-changing global economy.
Prerequisite(s): None

CADD1102 Fundamentals of CADD 4 2/2/0
This course provides the fundamentals of computeraided drafting using the latest version of AutoCAD drafting software. The course develops the fundamental CADD skills necessary to produce complex drawings and print them.
Pre/Corequisite(s): CPTR1100 or CPTR1104

CADD1114 Intro to Solids and Parametric Modeling 4 2/2/0
This course is an introduction to solid modeling and model-derived drawing layouts using the latest versions of Autocad, Inventor and Solidworks drawing softwares.
Prerequisite(s): CADD1102, MCDD1102

CADD2204 CAD Certification 1 0/1/0
This course covers the review of the computer skills necessary to pass the industry examination, Level 1, AutoCAD Certification. The student will review all of the basic and intermediate commands utilized in the general knowledge of CAD and CAD terminology.
Prerequisite(s): CADD1102

CADD2214 Advanced Solids and Parametric Modeling 4 2/2/0
This course covers advanced part modeling, assembly modeling, sheet metal and presentation files in the latest versions of the Inventor and Solidworks drawing softwares.
Prerequisite(s): CADD1114

CARP1102 Prin of Framing 3 3/0/0
This course is designed to provide an understanding of the principles of floor, wall, stair and roof framing.
Prerequisite(s): None

CARP1103 Building Skills - Lecture 3 3/0/0
This course will provide an understanding of house framing including, foundations, floors, walls, roof systems and stairways.
Prerequisite(s): None

CARP1104 Framing I 6 0/6/0
This course is designed to provide experience in constructing basic floor frames, wall frames, stair frames, ceiling and roof frames.
Prerequisite(s): None

CARP1107 Principles of Finishing - Lecture 2 2/0/0
This course will explore the materials and techniques used in interior and exterior finishing. Areas to be covered will be insulation, vapor barriers, wallboard, door hanging, window trim, house wrap, windows, doors and siding.
Prerequisite(s): None

CARP1108 Interior Finish I 4 1/3/0
This course provides an understanding of the materials used for interior finishing, plus hands-on experience in the application of these materials.
Prerequisite(s): CARP1104

CARP1110 Intro to Cabinet Building 3 1/2/0
This course covers basic kitchen design, cabinet planning, sizing and construction joints necessary for fabrication of a quality cabinet. The student will construct a basic upper and base cabinet. The student will learn how to laminate a countertop and install it.
Prerequisite(s): None

CARP1112 Exterior Finish I 3 1/2/0
This course provides the student with a basic knowledge of exterior finishes to building construction and installation. During the course the student will learn about and install various wall sidings, soffits and fascia coverings.
Prerequisite(s): None

CARP1130 Carpentry Practices 2 0/2/0
This course will allow the student to apply standard and acceptable carpentry practices. Projects might include, but are not limited to, both remodeling and new building additions, renovations and demolition.
Prerequisite(s): None

CARP1133 Building Skills - Lab 9 0/9/0
This course is designed to provide a hands-on learning environment in contructing the framing members of a house including floors, walls, roof systems and stairways.
Prerequisite(s): None

CARP1137 Principles of Finishing - Lab 9 0/0/9
This course is designed to provide hands-on learning environment in installing interior and exterior finishes. These will include insulation, vapor barriers, wallboard, door hanging, window trim, house wrap, windows, doors and siding.
Prerequisite(s): None

CARP2106 Footings and Foundations 2 1/1/0
This course prepares the student with the knowledge and skills necessary to complete site layout, footings and foundations for residential construction.
Prerequisite(s): None

CARP2202 Prin of Framing II 3 3/0/0
This course is designed to enhance the student's knowledge of framing concepts from CARP102. The instruction will explore complex applications of floor, wall, stair and roof construction.
Prerequisite(s): CARP1102, CARP1104

CARP2204 Concrete Technology 2 0/2/0
This course prepares the student with the knowledge and skills necessary to complete concrete flat work (basement floors, garage floors, driveways and sidewalks) for residential construction.
Prerequisite(s): CARP2106

CARP2206 Adv Framing Applications 6 0/6/0
This course is designed to increase the student's knowledge and skill level in floor, wall, stair, ceiling and roof framing. During this course the student will construct and install floor, wall, stair, ceiling and roof assemblies.
Prerequisite(s): CARP1104

CARP2208 Exterior Finish II 3 0/3/0
This course is designed to increase the student's knowledge, skills and proficiency in the application of windows, doors and roofing.
Prerequisite(s): CARP1112

CARP2210 Interior/Exterior Finish Prin 3 3/0/0
This course is designed to increase the student's knowledge in the materials and principles used in applying insulation, drywall, doors, interior trim and cabinets as well as exterior wall coverings, soffits, gutters and decks.
Prerequisite(s): CARP1108, CARP1112

CARP2212 Interior Finish II 4 0/4/0
This course is designed to increase the student's knowledge, skills and proficiency in the application of doors, trim, stair finish, cabinet installation, insulation and drywall.
Prerequisite(s): CARP1108

CARP2214 Exterior Siding 2 0/2/0
This course provides the student an opportunity to install common window and exterior door units, exterior trim and exterior wall finish materials.
Prerequisite(s): CARP1112, CARP2210

CARP2216 Deck Construction 2 0/2/0
This course provides the student with the opportunity to apply the knowledge and techniques necessary to select materials and construct decks, railings and stairs according to a predetermined plan.
Prerequisite(s): CARP1112, CARP2210

CARP2218 Soffits, Gutters, Gables 2 0/2/0
This course provides practice for the student in the application of various exterior finish materials to the fascia, soffit and gable areas including special methods for gutters.
Prerequisite(s): None

CARP2220 Carpentry Internship 3 0/0/3
This course provides the student with the opportunity to work for a contractor on a construction site practicing the skills learned in the first and second semester of the Carpentry curriculum. The student experiences working with other employees under various working conditions.
Prerequisite(s): CARP1108, CARP1110, CARP1112, CARP2106, BLDG1120, BLDG1114

CARP2222 Exterior Finish III 5 0/5/0
This course is designed to increase the student's knowledge, skills and proficiency in the application of building wraps and wall coverings and decks.
Prerequisite(s): CARP2208

CARP2224 Advanced Cabinets 4 1/3/0
This course provides advanced cabinet construction techniques for students. Emphasis is placed upon doors, rollouts, veneering and laminating.
Prerequisite(s): CARP1110

CARP2226 Special Projects/Topics 2 0/2/0
The student works with an advisor/instructor to develop a contract with specific content goals in areas deemed applicable to the carpentry industry and the student's career plan. This opportunity may be limited due to conditions such as instructor/lab/material availability.
Prerequisite(s): 18 CARP credits

CDEV1105 Development/Guidance 3 3/0/0
This course provides an overview of child development from conception through school age, with emphasis in the following areas: physical, cognitive, language, creative and social emotional. It integrates theory with developmentally appropriate practice in home, center-based and school settings. In addition, this course gives the student an introduction to positive child guidance techniques for individual and group settings. Course will help students to understand behavior problems and identify strategies to prevent and resolve problem behaviors.
Prerequisite(s): None

CDEV1107 Intro to Early Educ 3 3/0/0
Explore career opportunities with children and investigate a variety of child development programs for children ages birth through eight. Examine job requirements, duties, regulations and personal characteristics of successful workers. In addition, this course will guide the student in obtaining skills needed to maintain a safe and healthy child development setting.
Prerequisite(s): None

CDEV2200 Integrating Play 3 2/1/0
This course examines play during the infant, toddler, preschool and primary school aged years of development. Course will examine theories of play, discover how play promotes development, examine the physical environment and its relation to play and construct play materials appropriate to the play of children. Play is the work of children!
Prerequisite(s): CDEV1105, CDEV1107

CDEV2229 Imaginative Learning 3 2/1/0
This course provides an exploration of the home, center or school environment for children birth through eight. It includes an examination of both indoor and outdoor space in relation to arrangement, maintenance and evaluation. Students apply their knowledge in the environment's role in an actual work setting. DAP focus is on methods and materials in art, literature, music, math, science, physical and social/multicultural studies.
Prerequisite(s): CDEV1105, CDEV1107

CDEV2230 Brain Dvlp and Early Chldhd 1 1/0/0
This course is to assist child care providers and individuals who provide services to young children and their families using information about the brain to facilitate the growth and development of the young child.
Prerequisite(s): None

Course #	CourseTitle	CR	Lec/Lab/OJT

CDEV2232 Literacy and Reading 1 1/0/0
This course focuses on how literacy is best developed and what activities child care providers can do to promote the foundation for literacy development.
Prerequisite(s): None

CDEV2234 United Children/Youth 1 1/0/0
This course is designed to give child care and professionals who work with children a variety of information on developmental issues that surround young child care. Each issue will be addressed by a professional within that content area and explore as well as give information on how to better care for our young children.
Prerequisite(s): None

CDEV2236 Occupational Experience 1 0/0/1
This course provides an opportunity to apply knowledge and skill in an actual child development setting. Students will demonstrate competence in promoting health, safety and nutrition; guiding children; arranging learning environments; and communicating with parents.
Prerequisite(s): CDEV1102, CDEV1105, CDEV1107, CDEV1108

CDEV2238 Integrating Children with Special Needs 3 2/1/0
This course examines the development of and provides hands-on experiences for children with special needs in an integrated child care/primary school age setting. Students integrate knowledge of developmental needs, developmentally appropriate environments and effective teaching methods.
Prerequisite(s): CDEV2229

CDEV2240 Observing and Assessing 3 2/1/0
This course provides the student with an opportunity to observe and assess children's development. Under the supervision of an instructor, the student observes, records, interprets and develops plans to strengthen the development of infants through primary school-age children. Student will construct a child study based on assessments gathered throughout the course of the semester for one specific child.
Prerequisite(s): CDEV1105, CDEV1107, CDEV2200, CDEV2229

CDEV2242 Infant/Toddler Program 3 3/0/0
This course provides an overview of infant/toddler learning experiences, in either home or center-based settings. Students integrate knowledge of developmental needs, developmentally appropriate environments and effective caregiving and teaching methods.
Prerequisite(s): CDEV1105, CDEV1107, CDEV2200, CDEV2229

CDEV2243 Infant/Toddler Lab 1 0/1/0
Provides an opportunity for students to work with children in the specific Infant/toddler age group. Students will observe children in an appropriate setting and display appropriate child care techniques.
Prerequisite(s): CDEV 2242 or Concurrent enrollment in CDEV2242

CDEV2244 Parent and Professional Relations 3 3/0/0
This course covers the relationship between the caregiver and the child's family. Explore strategies to maintain professional relationships with co-workers, parents and outside organizations. Cultural diversity/dynamics, bias, public education, housing, employment, crime, health care, legal services and social services will be explored.
Prerequisite(s): None

CDEV2246 Foundations in Literacy 3 3/0/0
This course is an overview of early language acquisition, how literacy is best developed and what child care providers can do to promote the foundation for literacy development.
Prerequisite(s): CDEV1105, CDEV1107, CDEV2200, CDEV2229 or permission of instructor

CDEV2250 Sign Language 1 0/1/0
This course covers the basic principles of American Sign Language, its proper use with hearing-impaired children and adults and the value of learning non-verbal communication.
Prerequisite(s): None

CDEV2252 Paraprofessional Role 1 1/0/0
This course covers the basic services that a paraprofessional will provide for children in a classroom setting. The class will include professionalism, clerical duties, understanding of children with disabilities, formal and informal communications, classroom management, record keeping and understanding the needs of remedial students.
Prerequisite(s): CDEV1105, CDEV1107

CDEV2280 Play Development 1 1/0/0
This course assists child care providers and individuals who provide services to young children and their families in using information about play and its relationship to development to facilitate the growth and development of young children.
Prerequisite(s): None

CDEV2290 Internship 3 0/0/3
This course provides an opportunity to apply knowledge and skill in an actual child development setting. Students implement a variety of learning experiences that are developmentally appropriate and culturally sensitive for a specific group of children. This course is to be taken during the student's final semester in the program.
Prerequisite(s): Instructor approval

CHEM1050 Lab Calculations/Procedures 1 1/0/0
This course prepares students to apply mathematics (percents, metric system, molar mass, equivalent mass, molarity, normality, ratios, etc.) to formulas used in chemistry, histotechnique and the medical laboratory courses. The course emphasizes practical application of lab equations used to calculate quantities required to prepare chemical solutions/regents. An introduction to the basic laboratory measuring equipment will also be included. This course in intended for anyone taking a chemistry course.
Prerequisite(s): None

Course #	CourseTitle	CR	Lec/Lab/OJT

CHEM1100 Fund Concepts Chemistry 3 2/1/0
Meets MNTC Goal Areas 2 and 3. Course deals with substances, their structures and properties, the changes they undergo and the laws that govern those changes. Intended for prospective elementary teachers, non-science majors and those who need background for General Chemistry.
Prerequisite(s): MATH0090 or assessed into MATH1020 or MATH1114.

CHEM1101 Prin of General Chemistry 4 3/1/0
Meets MNTC Goal Areas 2 and 3. This course will provide the student with a basic understanding of the general principles of inorganic chemistry and include the topics of atomic structure, stoichiometry, solutions, bonding, thermochemistry and properties of solids, liquids and gases. The laboratory component introduces techniques, methods and instrumentation.
Prerequisite(s): Math 0090 OR assessed into Math 1020 or Math 1114 or above

CHEM1104 Medical Chemistry 4 3/1/0
An introductory course covering the analytical principles, techniques and correlation of results in the science of body chemistry. Included are types of instrumentation, calculations, preparations of reagents, quality assurance and quality control, specimen collection, transportation, analysis and results reporting.
Prerequisite(s): CHEM1100

CHEM1111 General Inorganic Chemistry I 5 4/1/0
Meets MNTC Goal Areas 2 and 3. This course is the first course of a two-course series (Chem 1111 and 1112). Students will learn the general chemistry principles: atomic structure, stoichiometry, solutions, bonding, thermochemistry, electronic structure, periodic properties of the elements, intermolecular forces and properties of solids, liquids and gases. The course includes a lab.
Prerequisite(s): Math 1020 or assessed into Math 1114 or above

CHEM1112 General Inorganic Chemistry II 5 4/1/0
Meets MNTC Goal Areas 2 and 3. This course is the second course of a two course series (Chem 1111 and 1112). Students will learn the general chemistry principles: solution chemistry, kinetics, chemical equilibrium, acid-base chemistry, solubility equilibrium, thermodynamics, oxidation-reduction, electrochemistry, coordination chemistry, nuclear chemistry and introductory environmental chemistry. The course includes a lab.
Prerequisite(s): CHEM1111

CHEM1115 Introduction to Organic and Biochemistry 4 3/1/0
Meets MNTC Goal Areas 2 and 3. This course consists of both lab and lecture sessions. Students will learn the fundamental concepts in organic and biochemistry: properties, classification and nomenclature of hydrocarbons and compounds containing various functional groups; basic organic reaction mechanisms; and structure and metabolism of carbohydrates, lipids, proteins and nucleic acids.
Prerequisite(s): Chem 1100. College-level reading and writing competencies required.

CHEM2224 Organic Chemistry I 5 4/1/0
Meets MNTC Goal Areas 2 and 3. This course is the first course of a two-course series (Chem 2224 and 2225). Students will learn the organic chemistry principles including: introduction to the classification, structure, reactions and reaction mechanisms of carbon compounds. The following topics will be included: structures and properties of organic compounds, methane and the alkanes, stereo chemistry, substitution and elimination reactions, electrophilic and free radical addition, alkenes, alkynes and various functional groups, conjugation and resonance, benzene and the aromatics, aromatic-aliphatic compounds, alcohols and ethers. The course includes a lab which will include: techniques for the purification, synthesis and characterization of organic compounds and the study of organic reactions. Green chemistry techniques will be practiced whenever possible.
Prerequisite(s): CHEM1112

CHEM2225 Organic Chemistry II 5 4/1/0
Meets MNTC Goal Areas 2 and 3. This course is the second course of a two course series (Chem 2224 and 2225). Students will learn the reactions and characteristics of various organic chemistry groups. The following topics will be included: aldehydes and ketones, carboxylic acids, amines, amides, phenols, carbanions, esters, aromatics, heterocyclic compounds, macromolecules and the possible addition of selected topics such as carbohydrates, fats, amino acids and proteins. The course includes a lab which will include: purification, synthesis and characterization of organic compounds and the study of organic reactions. Green chemistry techniques will be practiced whenever possible.
Prerequisite(s): CHEM2224

CIVL1102 Survey I: Fundamentals 2 1/1/0
The student will learn the principles of vertical distance measurement as well as construction staking and the compiling of field notes typical of the civil engineering field. This course will focus on the use of various surveying equipment and procedures.
Prerequisite(s): None

CIVL1119 Survey II: Land Surveys 3 1/2/0
This course covers survey principles involved in Civil Engineering Technology - to include topographic surveys, utilities, drainage and roadway alignment. This course emphasizes the use of Total Station and GPS for collecting data and CAD/Civil Software for processing data.
Prerequisite(s): CIVL1102

CIVL1138 CADD II: Plan Layout 3 2/1/0
This course first introduces the students to industry-specific civil design software. They will learn the concepts relating to civil engineering drawings including: topography, site planning, mapping and downloading survey data to create digital terrain models.
Prerequisite(s): CIVL1109

CIVL2206 Construction Surveys 2 0/2/0
This course covers construction staking, methods, types of controls, field notes typical of the civil engineering field and staking practices. Students will conduct field procedures and documentation necessary to complete staking.
Prerequisite(s): CIVL1109

CIVL2209 Construction Inspection 3 1/2/0
This course involves the study and performance of procedures necessary in the inspection and documentation of general construction of public works projects. Topics include project management, base inspection, concrete and bituminous.
Prerequisite(s): CIVL1102

CIVL2210 Road Design 3 1/2/0
The student will complete several drawings and computations typical of those used in the design of roadways. These may include control line location map, topographic drawing, cross sections, plan and profile earthwork computations and introduction to civil design software packages.
Prerequisite(s): CIVL1119, CIVL1138

CIVL2230 Civil Engineering Tech Intern 3 0/0/3
The civil engineering technology internship provides the student with an opportunity to apply skills and knowledge acquired in prior courses to the occupational setting. Students will develop a plan for the internship with the cooperation of the employer and the instructor. Students will practice surveying and design skills related to civil engineering projects.
Prerequisite(s): CIVL1138

CIVL2232 Survey III: Legal Surveys 3 2/1/0
The student will apply history, principles, rules and laws pertaining to land surveying. The student will research land survey records, identify property boundaries, reconstruct land surveys and draft legal descriptions. Students will also participate in boundary survey projects off-campus.
Prerequisite(s): CIVL1119

CIVL2234 Utility Design 3 2/1/0
The student will learn principles of sanitary, storm and water system layouts, design and construction. Design criteria and standards, plan and profile principles, cost estimating, construction staking and inspection of the different systems will be emphasized.
Prerequisite(s): CIVL1119, CIVL1138

CIVL2238 CADD III: Project Design 3 2/1/0
This course will focus on the application of civil design computer-aided drafting software for the completion of a project applying principles of civil engineering drawing.
Prerequisite(s): CIVL1138

CIVL2240 Intro to GIS 3 3/0/0
The course will discuss different types of geographic information systems (GIS) and their capabilities, with the main focus on ESRI ArcMAP 9.x software. Topics will include GIS data collection and input, GIS data types and basic mapping concepts.
Prerequisite(s): CPTR1100

CIVL2244 Survey IV: Equipment Software 3 2/1/0
This class covers the application of TDS Survey Pro software as it applies to the TDS Ranger and Recon total stations data collectors. The students will learn these various software routines to make them more efficient with their day-to-day surveying.
Prerequisite(s): CIVL1102

CIVL2246 Intro to Hydrology 3 2/1/0
This course will include introduction to hydraulic gradient, pipe and open channel flow, watershed analysis and storm water regulations. Students will be introduced to industry software used for various hydrological analyses.
Prerequisite(s): CIVL2234, CIVL2240

COMM1100 Power and Communications in Human Relations 3 3/0/0
Meets MNTC Goal Areas 1 and 2. This course is designed to assist individuals to better understand themselves and their relationship to the world in which they live and make a living. This is accomplished through oral, written and intrapersonal/interpersonal communication skills, which are valued for life and work experiences. To be well-prepared for the future will require a greater understanding of human relation's principles and practices. Changes in the evolution of the life/work environment are characterized by greater cultural diversity, more work performed by teams and greater awareness that "quality relationships are just as important as quality products in our global economy" as quoted in Effective Human Relations in Organizations by Reece and Brandt. It will be necessary to have the ability to cope effectively with today's life/work issues and problems that require extensive knowledge of human relationships.
Prerequisite(s): None

CONE1102 Intro Elec Circuit Theory 4 2/2/0
This introductory course provides the student with the knowledge of electrical theory including atomic structure, Ohm's Law, complex circuits, sine wave principles and inductive and capacitive circuits as it relates to the National Electrical Code.
Prerequisite(s): None

CONE1104 Intro to NEC 2 2/0/0
This course provides the student with an introduction to electrical material used in industry and also the National Electrical Code. The student develops basic skills and understanding of the National Electrical Code book and how it applies to electrical applications in the field.
Prerequisite(s): None

CONE1107 Intro Residential Wiring 3 1/2/0
This course provides a fundamental technical understanding of residential wiring. In addition, basic wiring skills for residential occupancies will be practiced in lab settings for residential occupancies applying National Electrical Code standards.
Prerequisite(s): None

CONE1108 Electrical Circuit Theory 4 2/2/0
This course provides the student with an understanding of complex RLC circuits, single-phase and three-phase transformer connections and calculations.
Prerequisite(s): CONE1102

CONE1110 AC/DC Motors/Generators 4 2/2/0
This course provides a fundamental understanding of AC and DC motor generator theory and basic skills. This course includes types, construction, operation, installation and maintenance of AC and DC motors and generators.
Prerequisite(s): BLDG1102, CONE1102

CONE1112 Residential Wiring 3 1/2/0
This course provides students with expanded technical understanding and skills necessary for residential wiring. Students will gain experience for installations common to residential structures including general receptacles, lighting and designated circuit layout and installation.
Prerequisite(s): CONE1107

CONE1114 National Electrical Code 2 2/0/0
This course provides students with an understanding of the National Electrical Code articles related to overcurrent protection, raceways, special systems, panelboards, motors, compressors, transformers and the State Electrical Act.
Prerequisite(s): CONE1104

CONE1115 Solar Photovoltaic Installation 1 1/0/0
This course covers the installation of pholovoltaic (PV) solar panels and associated equipment. Topics include principals of operation, payback, safety concerns, site selection, system types and sizing. The primary focus is how to install the units so they are in compliance with the National Electrical Code.
Prerequisite(s): None

CONE1116 Conduit/Tool Applications 2 0/2/0
Numerous applications and skills will be developed in this course including bending, threading and installation of various types of conduit. This course also provides a review of the operation and safety of both hand and power tools used in the construction electricity field.
Prerequisite(s): BLDG1102

CONE1118 Electrical Services 3 2/1/0
This course covers requirements and installation of service entrance equipment. Topics included are service materials, installation procedures, meters, service and conduit sizes, panel types, bonding, grounding and overcurrent protection.
Prerequisite(s): BLDG1102, CONE1104

CONE1120 Electrical Blueprints 3 2/1/0
The student will learn to read commercial blueprints with an emphasis on electrical circuitry including lighting, power, service, feeders and special systems. The course also introduces the student to CAD drawings.
Prerequisite(s): CONE1124

CONE1122 Intro to Materials 1 0/1/0
This course provides the student with an introduction to electrical material used in industry. The student develops basic skills and understanding of the material and how it applies to electrical applications in the field.
Prerequisite(s): None

CONE1124 Intro Elec Blueprint Read 2 1/1/0
This course provides the student with a working knowledge of residential blueprints and specifications. The student gains an understanding of blueprints, then interprets and applies this knowledge to the electrical industry.
Prerequisite(s): None

CONE1140 Power-Limited Exam Prep 2 2/0/0
This course covers the knowledge base associated with the Minnesota Power-Limited Technician license and includes all of the topics identified in the Minnesota Board of Electricity PLT study guide. Subjects covered include those found in the National Electrical Code and in the Minnesota Laws and Rules. Additional subjects covered include technical terminology, formulas and procedures that are essential elements of the PLT examination, not all of which are found in the NEC.
Prerequisite(s): None

CONE1170 Predictive Maintenance Technology 2 1/1/0
This course is designed to introduce students to the current predictive maintenance technology used in the "Best Maintenance Practices" as used by top-performing companies in industry. The course will cover infrared thermography, vibration analysis, ultrasonic detection, oil spectrum analysis, motor current analysis and other technologies. These methods are used in electrical and mechanical maintenance programs in industry to predict failures of electrical connections, equipment, bearings and other critical machines found in industry. Students will also be introduced to "Best Maintenance Practices" and their impact on the future of industry in the United States.
Prerequisite(s): None

Course #	CourseTitle	CR	Lec/Lab/OJT

CONE1175 Best Maintenance Practices I 2 1/1/0
Over 70 percent of equipment failures in industry and manufacturing are self-induced by the company's own maintenance workers, policies, or attitudes resulting in downtime or lost production. This course covers the best maintenance practices as determined by top industrial and manufacturing companies. This course covers permanent repairs as related to specific tasks such as bearing replacement, chains, belts, coupling, lubrication, proper alignment and packing and seals.
Prerequisite(s): None

CONE2202 Heating/Cooling Controls 3 1/2/0
This course introduces basic electric heating, gas, oil and heat pump and cooling system installation and control. Topics included are installing wiring for heating and air conditioning systems, replacing controls, measuring instruments and schematic interpretation.
Prerequisite(s): CONE1102, CONE1107, CONE1116

CONE2205 Intro Commercial Wiring 3 1/2/0
This course examines the material and design aspects of commercial wiring. Topics included are raceways, boxes, design requirements for conduit layouts, circuit overcurrent protection and lighting.
Prerequisite(s): BLDG1102, CONE1104, CONE1122

CONE2206 Intro Motor Control Applic 3 2/1/0
This course provides an understanding of motor control symbols, line diagrams, contractors, starters and operating circuits. Lab procedures demonstrate components, circuitry and operation learned in theory. Measured data is recorded and interpreted.
Prerequisite(s): CONE1108, CONE1110

CONE2208 Prog Logic Controllers 2 1/1/0
This course covers the theory, operation, installation, hardware, software and practical applications of the programmable logic controllers. Basic PLC programming techniques for counters, timers and sequencers will be presented.
Prerequisite(s): None

CONE2211 Electronic Motor Control 3 2/1/0
This course provides application of basic theory and operation to electronic motor control including semi-conductor, rectifiers, regulators and amplifiers.
Prerequisite(s): BLDG1102, CONE1108

CONE2212 Commercial Wiring 3 1/2/0
This course covers materials and design aspects of commercial wiring, in particular, lighting and fuse applications. Topics included are lighting and lamp installation and selection, fuse selection, special outlets, load schedule, short circuit calculations and emergency illumination.
Prerequisite(s): BLDG1102, CONE2205

CONE2214 Industrial Wiring 2 1/1/0
This course covers the installation methods and materials used in industrial wiring. Topics included are transformers, busways, motor installation, industrial metering, overcurrent system coordination, ground detection, grounding systems, power factor correction, surge protection, distribution, special systems and industrial hazardous locations and the study of the National Electrical Code relating to these topics.
Prerequisite(s): BLDG1102, CONE1114

CONE2216 Motor Control Application 3 1/2/0
This course provides an advanced understanding of circuits controlling motors. Topics include jogging, braking, plugging, reduced voltage starting, phase loss protection, latching relays, time delay relays and safety requirements. Lab procedures demonstrate components, circuitry and operation learned in theory. Measured data is recorded and interpreted.
Prerequisite(s): CONE2206

CONE2217 Building Automation I 2 0/2/0
This course introduces students to building automation systems. These systems are becoming critical required components used for green buildings, energy conservation and building safety systems. Topics covered in this course included electrical energy production, alternative energy sources and interconnection of renewable sources to existing power systems. This course also covers green utilization equipment and controls for lighting controls, heating, ventilating and air conditioning controls and plumbing controls.
Prerequisite(s): None

CONE2218 Building Automation II 2 0/2/0
This course is a continuation of Building Automation I. Topics covered include more critical building safety and security systems. These systems include fire systems, security and access control systems. Voice, data and video systems and automated building operations. Students will gain hands-on experience installing, programming and troubleshooting live systems.
Prerequisite(s): CONE2217

CONE2220 Electrician Internship 3 0/0/3
This course provides the student with the opportunity to work for an electrician or in another approved electrical setting. The student will experience working at the job site with other employees and under various working conditions.
Prerequisite(s): 25 CONE credits

CONE2222 Adv Prog Logic Controllers 3 1/2/0
This course presents practical applications of programmable logic controllers with emphasis on advanced programming techniques and analog modules, input devices and hands-on wiring of PLC circuits. PLC programs are created and installed for operation of actual electrical equipment.
Prerequisite(s): CONE2208

CONE2225 Transformers 2 0/2/0
This course covers the concepts of transformer operation. Single-phase and three-phase (polyphase) transformer operation and installation methods are explored. Included in the course are the following topics: transformer operation, transformation relationships, transformer losses, transformer types, transformer testing, series and parallel operation, connections, instrument transformers and maintenance procedures. National Electrical Code requirements for transformer installations are developed and utilized.
Prerequisite(s): CONE1108

CONE2226 Agricultural Wiring 2 1/1/0
This course introduces the design of farm wiring systems. Electrical distribution, dairy, poultry and hog structures will be included. Field crop storage, hog, dairy, poultry wiring, farm shop and machinery shed wiring, irrigation wiring and farmstead lighting are also presented.
Prerequisite(s): BLDG1102, GSMS1110

CONE2228 Troubleshooting 1 0/1/0
This course provides an application of principles of construction electricity to a variety of situations for the purpose of identifying and solving electrical problems. Emphasis is placed on electrical circuits pertaining to commercial, industrial and motor control applications.
Prerequisite(s): 36 CONE credits

CONE2230 Load Management Controls 2 1/1/0
This course provides an understanding of load management control for power company off-peak systems. Time clock, radio, ripple and demand controller wiring is covered.
Prerequisite(s): CONE1107, CONE1108

CONE2234 Hydraulics/Pneumatics 2 1/1/0
This course provides the knowledge of pneumatic and hydraulic controls as necessary for the electrician employed in an industrial setting.
Prerequisite(s): None

CONE2236 Industrial Motor Maintenance 2 1/1/0
This course includes principles of industrial motor maintenance and experience with the maintenance and troubleshooting situations common to industrial settings.
Prerequisite(s): CONE1110

CONE2238 Low Voltage Wiring 2 1/1/0
This course provides students with an understanding of installation procedures and National Electrical Code requirements for coax, telephone, fire alarm, security, fiber optic, cat 4, cat 5 and other low voltage wiring systems.
Prerequisite(s): None

CONE2240 Journeyman and Master Electrician Prep 1 1/0/0
This course provides the experienced electrician and advanced student with an overview of the National Electrical Code and the State Electrical Act and can be used in preparing for the journeyman or masters electrical exam. The course is approved for continuing education hours.
Prerequisite(s): 30 CONE credits or experience in the electrical field

CONE2244 Natl Elec Code Changes 1 1/0/0
This course covers the recent changes in the National Electrical Code and how it will affect current wiring practices. The course is approved for continuing education hours.
Prerequisite(s): CONE1104 or experience in the electrical field

CONE2246 Advanced Electronics 2 1/1/0
This course provides theory, operation and practical applications of various field effect transistors, thyristors, photosensitive devices, sensing devices and wave chopping circuitry.
Prerequisite(s): CONE2211

CONE2247 Advanced Electronics 3 1/2/0
This course provides theory, operation and practical applications of various field effect transistors, thyristors, photosensitive devices, sensing devices and wave chopping circuitry.
Prerequisite(s): CONE2211

CONE2248 Code Applications 2 1/1/0
This course applies the principles of the National Electrical Code to job-specific situations.
Prerequisite(s): CONE1104, CONE1114

CONE2250 Special Topics/Projects 2 0/2/0
The student works with an advisor and instructor to develop a contract with specific goals in areas deemed applicable to the construction electricity industry and the student's career plan. This opportunity may be limited by conditions such as instructor/lab/material availability.
Prerequisite(s): 12 CONE credits

CONM1102 Site/Building Layout 2 1/1/0
This course provides the student with the basic knowledge and hands-on skills necessary to lay out a building site and establish elevations for construction.
Prerequisite(s): None

CONM1108 Principles of Estimating 4 2/2/0
This course covers material, labor and equipment estimating which make up the primary portion of the direct costs used in a construction bid. These procedures are the first step in completing accurate bids for construction projects of all sizes.
Prerequisite(s): None

CONM1124 Building Systems 3 3/0/0
This course is a comprehensive treatment of the various techniques, systems and methodologies utilized in the construction industry and will help the student prepare for the responsibilities of supervision on a modern construction project.
Prerequisite(s): None

CONM2204 Materials Testing 3 1/2/0
This course covers inspection techniques, methods of material measurement, documentation, material sampling and testing methods for soils and concrete.
Prerequisite(s): None

CONM2206 Building Codes 2 2/0/0
This course is designed to introduce the Uniform Building Code to students in the construction field where a basic knowledge of the code's requirements are needed. Emphasis will be placed on the development and proper use of the code.
Prerequisite(s): None

CONM2208 Construction Bidding 2 1/1/0
This course will explore standard construction contract documents and project estimating procedures and their use in building a competitive bid.
Prerequisite(s): CONM1108

CONM2210 Construction Scheduling 3 2/1/0
Planning and scheduling are important management tools. In this course students will work with several scheduling techniques commonly used in the construction industry to bring projects to timely and economically successful ends.
Prerequisite(s): CONM2208

CONM2212 Site Management 3 3/0/0
This course covers construction site management from the standpoint of best utilization of site, facilities and services in a safe and efficient manner to complete construction projects.
Prerequisite(s): None

CONM2214 Safety Management 3 3/0/0
This course includes construction management applications in the areas of safety and health. Students will have an opportunity to write construction company safety policies and work directly with other governmental safety and health programs and policies as they are used by construction companies.
Prerequisite(s): None

CONM2216 Computer Estimating 2 1/1/0
This course provides the fundamentals of estimating utilizing computer estimating software and/or Timberline estimating software and explores the use of spreadsheet and database software in estimating.
Prerequisite(s): CONM2208, CPTR1104

CONM2222 Construction Mgmt Internship 2 0/0/2
This course will provide construction management students with an opportunity to apply and extend their knowledge, practice their skills, integrate behaviors and explore areas of employment within the construction industry. Students will perform activities consistent with program outcomes in an industry setting with the supervision of the site employer.
Prerequisite(s): Completion of 45 program credits or advisor approval

COSM1001 Introduction to Cosmetology 3 0/3/0
In this course students will learn some of the basic techniques pertaining to hair, skin and nails and meet a portion of the required hours towards the State Board of Cosmetology. The course content will provide a brief overview of all the cosmetology topics that are required by the State Board of Cosmetology for licensure. Upon completion of this course, students attending 1 year will earn 90 hours toward their cosmetology license. Students who elect to take the course a second time will earn 180 hours toward their cosmetology license.
Prerequisite(s): None

COSM1102 Preclinic Intro Cosmetology 3 1/2/0
This course covers shampooing, draping, wet hairstyling, hair and the disorders of the hair. It also includes bacteriology and decontamination.
Prerequisite(s): None

COSM1103 Shampooing and Rinsing 2 1/1/0
This course covers shampooing and draping. Students will learn importance of selecting correct shampoo for various hair types.
Prerequisite(s): None

COSM1104 Preclinic Intro Manicurist 3 1/2/0
This course provides an introduction to skin and nail disorders, professional image, Minnesota laws and rules, safety and sanitation, anatomy, electricity and light therapy, chemistry and salon management.
Prerequisite(s): None

COSM1105 Hairstyling 3 1/1/1
This course will instruct you how to conduct services in a safe environment. You will learn styling and finishing techniques to complete a hairstyle to the satisfaction of the client.
Prerequisite(s): None

COSM1106 Preclinic Intro Esthetist 3 1/2/0
This course provides an introduction to skin disorders, superfluous hair removal, professional image, Minnesota laws and rules, safety and sanitation, anatomy, electricity and light therapy, chemistry and salon management.
Prerequisite(s): None

COSM1107 Haircutting 3 1/1/1
This course will help you develop a strong foundation in haircutting. You will learn basic sectioning and cutting techniques. You will learn how to use scissors, razors and clippers to achieve a strong foundation in haircutting.
Prerequisite(s): None

COSM1108 Preclinic Hair Care 3 1/2/0
This course provides elementary hair service skills including hair cutting, thermal styling, artificial hair, scalp treatments and electricity/light therapy.
Pre/Corequisite(s): COSM1102

COSM1110 Preclinic Nail Care 3 1/2/0
This course provides students with the opportunity to develop the required speed and confidence necessary for entry-level manicuring and pedicuring skills. Students will perform manicures and pedicures on each other and on clients under the supervision of an instructor. This course also covers a variety of artificial nails and the safety precautions that accompany them.
Pre/Corequisite:(s) COSM1102

COSM1111 Properties of the Hair and Scalp 2 1/1/0
In this course you will learn the different layers of the hair and how it can be damaged. It is essential for you to be able to analyze a client's hair and determine what type of damage the hair has experienced and prescribe corrective treatment.
Prerequisite(s): None

COSM1112 Preclinic Chemical Control 3 1/2/0
This course provides an introduction to cosmetology chemicals and their applications. This includes curl reformation, permanent waving, soft curl perming, chemical relaxing and hair pressing.
Pre/Corequisite(s): COSM1108, COSM1110

COSM1113 Chemical Texture Services 3 1/1/1
In this course you will perform hair relaxation and wave formation techniques in accordance with manufactures' direction you will consult with clients to determine their needs and preferences. You will conduct services in a safe environment taking measures to prevent the spread of infections and contagious diseases.
Prerequisite(s): None

COSM1114 Preclinic Hair Color 3 1/2/0
This course provides an introduction to temporary, semi-permanent, permanent and de-colorization hair color services.
Pre/Corequisite(s): COSM1112

COSM1115 Braiding/Extensions/Wigs 2 1/0/1
This course will instruct you how to do non surgical hair additions. You also will learn basic braiding procedures to create hairstyles that are pleasing to clients.
Prerequisite(s): None

COSM1116 Preclinic Skin Care 3 1/2/0
This course provides an introduction to dermatology, facials and make-up. It also covers facial treatments, basic manipulations, facial packs and masks. In addition students receive training in the application of make-up highlighting and shadowing. The basics in anatomy of the head, face and neck and also students are instructed in the use of high frequency current in treating skin disorders.
Pre/Corequisite(s): COSM1102

COSM1118 Advanced Hair Care 3 1/2/0
This course provides advanced skill training in hair cutting, chemical control and hair color.
Pre/Corequisite(s): COSM1114

COSM1120 Salon Preparation 3 2/1/0
This course prepares students for clinical experiences including salon management, Minnesota cosmetology laws and rules and retail operations.
Pre/Corequisite(s): COSM1114 (Cosmetology), COSM1116 (Esthetician)

COSM1121 Histology of the Skin 2 1/1/0
In this course the student will learn the basic structure of the skin and its function. The student will learn how to conduct services in a safe environment and how to take measures to prevent spreading infectious and contagious diseases.
Prerequisite(s): None

COSM1122 Clinic I 3 0/3/0
This course provides students with the opportunity to develop the practical skills necessary for entry-level salon work.
Pre/Corequisite(s): COSM1110 or COSM1114 or COSM1116

COSM1123 Facials/Make-Up/Hair Removal 3 1/1/1
In this course the student will learn the uses of various skin care products and how to apply them to different skin types. The student will learn basic make-up application including artificial lashes. The student will learn basic massage movements to assist in providing basic skin care services.
Prerequisite(s): None

COSM1124 Clinic II 3 0/3/0
This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work.
Pre/Corequisite(s): COSM1114 or COSM1116

Course #	CourseTitle	CR	Lec/Lab/OJT

COSM1125 Nail Structure and Growth 1 1/0/0
In this course the student will learn the structure of the nail. The student will recognize the various disorders and which disorders can be serviced in the salon.
Prerequisite(s): None

COSM1126 Clinic III 3 0/3/0
This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work.
Pre/Corequisite(s): COSM1116 or COSM1118

COSM1127 Hair Color 3 1/1/1
In this course you will learn how to conduct a color service in accordance with a client's needs. You will learn the importance of using a variety of salon products and techniques to achieve the appropriate color outcome.
Prerequisite(s): None

COSM1128 Clinic IV 3 0/3/0
This course provides students with the opportunity to develop the practical skills necessary for entry-level salon work.
Pre/Corequisite(s): COSM1114

COSM1131 Manicuring/Pedicuring 2 1/0/1
In this course students will learn basic manicuring and pedicuring procedures. Students will learn how to provide services in a safe environment.
Prerequisite(s): None

COSM1132 Clinic VI 3 0/3/0
This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work.
Pre/Corequisite(s): COSM1114

COSM1133 Anatomy of the Head, Face and Neck 2 1/1/0
In this course you will learn basic anatomy of the head, face and neck so that you can perform all the services you are trained and qualified to do.
Prerequisite(s): None

COSM1134 Nail Clinic/License Prep 3 0/3/0
This course prepares students for their written examinations and skill certification.
Pre/Corequisite(s): COSM1118

COSM1135 Advanced Nail Techniques 3 1/1/1
In this course students will learn how to conduct a client consultation to determine client needs and preferences. Students will learn to work with a variety of salon products that will enable them to provide nail services on clients.
Prerequisite(s): None

COSM1136 Cosmetology License Prep 3 1/1/1
This course prepares students for their state examinations and completion of skill certification.
Pre/Corequisite(s): COSM1118

COSM1137 Principles of Hair Design 1 1/0/0
This course will give you an understanding of design and how to incorporate design into creating a pleasing hairstyle for each client's facial features.
Prerequisite(s): None

COSM1138 Estheology Clinical/License Prep 3 0/3/0
This prepares students for their written examinations and skill certification.
Prerequisite(s): None

COSM1140 Clinic VII 3 0/3/0
This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work.
Pre/Corequisite(s): COSM1114

COSM1141 Chemistry/Electricity 2 1/1/0
In this course you will learn of the two types of electricity, how they are measured and the safety devices pertaining to electricity. Many of the services you will provide actually change the hair, skin and nails chemically. It is essential that you have a good working knowledge of chemistry in order to provide the safest and most effective services.
Prerequisite(s): None

COSM1143 Salon Business 2 1/1/0
In this course the student will learn how to manage time to provide efficient client services. The student will learn the necessary steps to retain clients. The student will learn how to market salon products and maintain business records.
Prerequisite(s): None

COSM1145 Infection Control 2 1/1/0
In this course you will learn the nature of various organisms, how they relate to disease and how their spread can be prevented in the salon and at school.
Prerequisite(s): None

COSM1146 Manicurist Clinic I 3 0/3/0
This course provides students with an opportunity to develop the practical skills necessary for entry level salon work.
Prerequisite(s): COSM1104, COSM1110

Course #	CourseTitle	CR	Lec/Lab/OJT

COSM1147 Minnesota Cosmetology Laws and Rules 2 1/1/0
This course prepares students for the Laws and Rules portion of their state license examination.
Prerequisite(s): None

COSM1148 Superfluous Hair Removal 2 1/1/0
This course covers the different methods of hair removal that are being used by nail technicians in salons and day spas.
Prerequisite(s): None

COSM1149 Advanced Hair Design 1 0/1/0
This course provides advanced skill training in hair cutting, chemical control and hair color.
Prerequisite(s): None

COSM1150 Salon Operations I 1 0/1/0
This course gives students additional time to complete the required services and/or hours for licensure. Content for this course is chosen from among the skills already gained in other courses. The practice will be performed on live models under the supervision of the instructor in the salon setting on the clinic floor.
Pre/Corequisite)s): COSM1136 (Cosmetology), COSM1138 (Esthetician) and COSM1134 (Manicurist)

COSM1152 Salon Operations II 2 0/2/0
This course gives students additional time to complete the required services and/or hours for licensure. Content for this course is chosen from among skills already gained in other courses. The practice will be performed on live models under the supervision of the instructor in the salon setting on the clinic floor.
Pre/Corequisite(s): COSM1136 (Cosmetology), COSM1138 (Esthetician) and COSM1134 (Manicurist)

COSM1154 Salon Operations III 3 0/3/0
This course gives students additional time to complete the required services and/or hours for licensure. Content for this course is chosen from among skills already gained in other courses. The practice will be performed on live models under the supervision of the instructor in the salon setting on the clinic floor.
Pre/Corequisite(s): COSM1136 (Cosmetology), COSM1138 (Esthetician) and COSM1134 (Manicurist)

COSM1155 Professional Image 1 1/0/0
This course relates to proper conduct and business dealings with employers, clients and co-workers, as well as others with whom you come in contact with.
Prerequisite(s): None

COSM1156 Salon Operations IV 4 0/4/0
This course gives students additional time to complete the required services and/or hours for licensure. Content for this course is chosen from among skills already gained in other courses. The practice will be performed on live models under the supervision of the instructor in the salon setting on the clinic floor.
Pre/Corequisite(s): COSM1136 (Cosmetology), COSM1138 (Esthetician) and COSM1134 (Manicurist)

COSM1158 Salon Operations V 5 0/5/0
This course gives students additional time to complete the required services and/or hours for licensure. Content for this course is chosen from among skills already gained in other courses. The practice will be performed on live models under the supervision of the instructor in the salon setting on the clinic floor.
Pre/Corequisite(s): COSM1136 (Cosmetology), COSM1138 (Esthetician) and COSM1134 (Manicurist)

COSM1160 Salon Operations VI 6 0/6/0
This course gives students additional time to complete the required services and/or hours for licensure. Content for this course is chosen from among skills already gained in other courses. The practice will be performed on live models under the supervision of the instructor in the salon setting on the clinic floor.
Pre/Corequisite(s): COSM1136 (Cosmetology), COSM1138 (Esthetician) and COSM1134 (Manicurist)

COSM1162 Airbrushing Techniques 1 1/0/0
In this course you will be learning the art of airbrushing techniques on natural and artificial nails. This course will include client consultation, safety and sanitation.
Prerequisite(s): Licensed manicurist, licensed cosmetologist, manicuring student or cosmetology student

COSM1164 The Art of Clipper Cutting 1 1/0/0
In this course you will learn the art of clipper cutting and beard design. This course will include client consultation, safety and sanitation.
Prerequisite(s): Licensed cosmetologist or cosmetology student

COSM1166 Alexandria Body Sugaring 1 1/0/0
In this course students will learn how to remove hair using the Alexandria Professional Body Sugaring advanced system. Theory and thorough knowledge of the correct techniques employed in the practices of body sugaring will be taught.
Prerequisite(s): Licensed or a current student in the cosmetology, esthetic, or manicuring field

COSM1170 40-Hr Refresher Course 2 1/1/0
This course gives students the Minnesota 40-hour refresher course requirements needed for license renewal.
Prerequisite(s): Previous Minnesota cosmetology license

COSM1172 155-Hr React Crs: Practical 3 0/3/0
This course gives students the practical portion of the Minnesota 155-hour reactivation course requirements for reactivating a license.
Prerequisite(s): Previous Minnesota cosmetology license

COSM1174 155-Hr React Crs: Theory 3 3/0/0
This course gives students the theory portion of the Minnesota 155-hour reactivation course requirements for reactivating a license.
Prerequisite(s): Previous Minnesota cosmetology license

COSM1176 155-Hr React Crs: License Prep 1 1/0/0
This course prepares students for their written and practical examinations required for reactivating a license.
Prerequisite(s): Previous Minnesota cosmetology license

COSM1200 Salon Practicum 3 0/3/0
In this course, students will purchase needed credits (hours) to complete the required 1550 hours set forth by the State Board of Cosmetology.
Prerequisite(s): None

CPTR0050 Basic Computer Skills 1 .5/.5/0
This course offers an introductory exposure to the many uses and aspects of computer technology. In this hands-on- course, students will develop keyboarding skills while using computers to learn the components of computer systems and study various software applications including word processing, presentation and internet browsing software. Students also explore the processes of using technology for research, communication and information processing.
Prerequisite(s): None

CPTR1100 Fund Computer Concepts 1 0/1/0
This course provides a general overview of the frequently-used functions of a personal computer. Computer hardware, operating systems, electronic mail, Internet and a brief introduction to an office software package will be covered.
Prerequisite(s): None

CPTR1102 Intro to MAC 3 2/1/0
This course covers the operation of the Macintosh computer hardware and software. The course covers the Macintosh operating system as well as an introduction to Microsoft Office software.
Prerequisite(s): None

CPTR1104 Intro to Computer Tech 3 2/1/0
This course covers the operation of the personal computer hardware and software. The course is an overview of a personal computer operating system, word processing, spreadsheets, presentation, e-mail, scheduling, Internet and database management software.
Prerequisite(s): None

CPTR1106 Microcomputer Databases 3 2/1/0
This course covers database concepts, design and construction using the latest database software. Topics include database normalization and table relationships, database objects, file creation, file manipulation, queries, macros, form development and report generation. Database programming concepts will also be introduced.
Prerequisite(s): None

CPTR1108 CISCO 1 3 1/2/0
This course covers the OSI model, basic networking math, basic network devices and an introduction to network design. This is an introduction to networking.
Prerequisite(s): None

CPTR1110 Visual Basic Program I 3 2/1/0
This course covers an introduction to the Visual Basic programming language. It covers language basics and program structure. Topics include, graphical interface design and development, control properties, event-driven procedures, variables, scope, expressions, operators, functions, decision-making structures, looping structures and database access.
Prerequisite(s): None

CPTR1112 Visual Basic Program II 3 2/1/0
This course is the second and final course in the BASIC programming language. Topics include looping, menus, arrays, subroutines, sorting, strings and files.
Prerequisite(s): CPTR1110

CPTR1114 COBOL Programming I 3 2/1/0
This course is an introduction to the COBOL language and covers the fundamentals of the COBOL language and programming techniques. Programming assignments are completed in the lab. Topics include sequential file access and report formatting.
Prerequisite(s): None

CPTR1118 CISCO 2 3 2/1/0
This course covers additional OSI layer topics, network routing and auditing. Students learn and practice accepted router configuration procedures.
Prerequisite(s): CPTR1108

CPTR1122 Microcomputer Maintenance 3 1/2/0
This course covers the operation, diagnosis, troubleshooting and basic repair of microcomputer components. Topics include hardware compatibility, system architecture, memory, input devices, video displays, disk drives, modems and printers.
Prerequisite(s): None

CPTR1125 IT Essentials 3 1/2/0
The IT Essentials course is an introductory course for computer hardware, including PC's and laptop computers operating systems and IT security. Topics covered include computer components, building a computer, maintenance and troubleshooting personal computing, mobile devices, connecting to the Internet and an introduction to emerging green technologies such as energy efficient computing and virtualization.
Prerequisite(s): None

CPTR1128 RPG/OS400 I 4 2/2/0
This course is an introduction to RPG programming and AS400 system operations. You will learn the basics of operating the AS400 and begin writing RPG programs. These programs will include the building of physical files, writing RPG code, compiling, error finding and producing reports. A strong emphasis will be put on developing logic to program more intermediate RPG programs. A high concentration will be on the structure of the student's calculation specifications. Students will learn how to add, delete and update data to physical files through their RPG programs.
Prerequisite(s): None

CPTR1130 IT Essentials 2 3 1/2/0
The IT Essentials 2 course is an advanced course for computer hardware, including desktop and laptop personal computers operating systems, basic IT security and basic networking fundamentals. Topics covered include computer hardware and operating systems configurations, building a basic network, networking technologies and protocols and preventive maintenance and troubleshooting of information technology hardware, software, security and networked devices.
Prerequisite(s): CPTR1125

CPTR1138 Information Systems 3 2/1/0
This course is an introduction to information systems. Topics include an overview of data communications and information systems used in a variety of organization types, network hardware, software, topologies and resources, hardware and communications standards and the systems development life cycle.
Prerequisite(s): None

CPTR1140 Network Essentials 2 1/1/0
This course covers the ability to implement, administer and troubleshoot information systems. This course prepares students for a certification exam.
Prerequisite(s): None

CPTR1142 Network Essentials 3 2/1/0
This course covers the ability to implement, administer and troubleshoot information systems.
Prerequisite(s): None

CPTR1148 Microcomputer Operating Sys 3 1/2/0
This course covers basic information about computer hardware and software and the use of the Windows operating system. Topics include file management techniques, utilizing common screen elements, multi-tasking, object linking and customizing the desktop.
Prerequisite(s): None

CPTR1150 Adv Microcomputer OS 3 1/2/0
This course covers basic information about computer hardware and software and the use of advanced Windows as the operating environment. This course prepares students for a certification exam.
Prerequisite(s): CPTR1148

CPTR1160 Practical Math-Spreadsheet 3 2/1/0
This course combines spreadsheet concepts, development and use. Topic include formulas, functions and graphs with an emphasis on business math applications.
Prerequisite(s): None

CPTR1164 Word Processing for Technicians 3 2/1/0
This course covers the basics of word processing for technicians. The emphasis is on functional use, forms design and template construction as applied to technical documentation.
Prerequisite(s): None

CPTR1166 Word Processing and Spreadsheets 4 2/2/0
This course combines spreadsheet concepts, development and use. Topics include formulas, functions and graphs with an emphasis on business math applications. This course covers the basics of word processing for technicians. The emphasis is on functional use, forms design and template construction as applied to technical documentation.
Prerequisite(s): None

CPTR1170 Web Engineering I 3 2/1/0
This course is an introduction to programming and maintaining professional Web pages for the business environment. Topics will include page design, authoring tools, accessibility issues and Web page and Web site development. Focus will be given to client-side programming languages such as HTML and JavaScript, Web server software, Web server maintenance and Internet protocols.
Prerequisite(s): None

CPTR1178 Robotics 3 2/1/0
This course teaches basic robot building, operation and troubleshooting. Students will build and program robots to meet the current class requirements. Students will use elements of project management. Students will use elements of project management and documet aspects of robot building, operation and troubleshooting.
Prerequisite(s): CPTR1104

CPTR2200 CISCO 3 3 2/1/0
This course is a study of ethernet problems and solutions. The course covers ethernet segmentation options and VLAN configuration. The student will practice solving these problems.
Prerequisite(s): CPTR1118

CPTR2208 CISCO 4 3 2/1/0
This course covers WAN configuration and remote access configuration. Students will practice design and configuration of systems to solve WAN and remote access problems.
Prerequisite(s): CPTR2200

CPTR2220 COBOL Programming II 3 2/1/0
This is the second course in COBOL programming language. Topics include sorting, table processing, data manipulation, control break processing, sequential file maintenance and indexed and relative files.
Prerequisite(s): CPTR1114

CPTR2224 Linux I 3 2/1/0
This course deals with Linux installation, configuration and system administration and it lays the groundwork for continue study of Linux.
Prerequisite(s): None

CPTR2228 RPG/OS400 II 4 2/2/0
This course is a continuation of the RPG/OS400 I course with more advanced RPG programming and OS400 operations introduced. There is a strong emphasis on developing screen programs that call one another and pass parameters between them. A large programming project will be given the student at mid-semester in which they will develop many programs that are related and dependent on each other.
Prerequisite(s): CPTR1128

CPTR2230 Struc Query Language 3 2/1/0
This course covers the basics of SQL (Structured Query Language) programming. SQL is a popular computer language that is used by small and large business organizations and computer programmers. The primary purpose of SQL is in working with databases and relational database management systems to store, retrieve, edit, manipulate and format data for end users and decision makers.
Prerequisite(s): CPTR1106

CPTR2234 Linux II 3 2/1/0
The primary focus of this course is Linux networking, security, ethics and privacy.
Prerequisite(s): CPTR2224

CPTR2236 Network Security 3 2/1/0
This course deals with the understanding of network security and its importance to protecting digital information assets. Students will learn about various security threats and how to implement and manage systems to guard against them.
Prerequisite(s): CPTR1148, CPTR2272

CPTR2240 Database Administration 3 2/1/0
This course covers the tasks and duties of administering a relational network database server and database design theory and practice. Students learn to analyze a business situation and use database design principles to develop a database solution, as well as learn to administer a database in a business environment. Students will learn how to install, manage, secure and optimize a relational network database server preparing them for the role of database administrator as well as database concepts the relational database model, normalization and data integrity.
Prerequisite(s): CPTR2230

CPTR2242 Java Programming 3 2/1/0
In this course the student utilizes the Java programming language to create both Internet applets and applications.
Prerequisite(s): None

CPTR2252 Microcomputer Systems Project 3 1/2/0
Students utilize the content of previous data communication and microcomputer courses to design and implement a microcomputer/networking solution to a business need. Hardware and software projects may include designing, installing, upgrading, or expanding. Students may work on individual projects.
Prerequisite(s): CPTR 2230 or CPTR 2272

CPTR2256 TCP/IP 3 2/1/0
This course covers the implementation, administration and troubleshooting information systems that incorporate TCP/IP.
Prerequisite(s): CPTR1142

CPTR2262 IPv6 3 2/1/0
The Internet Engineering Task Force (IETF) developed Internet Protocol version 6 to replace Internet Protocol version 4. Internet Protocol version 6 incorporates lessons learned from running a worldwide expanding network. Students will learn how to manage systems using Internet Protocol version 6.
Prerequisite(s): CPTR2272, instructor approval

CPTR2264 Designing Directory Services 3 2/1/0
Student are introduced to real world examples to reinforce key concepts for designing, configuring, administering and troubleshooting directory and network services available within a server/client based network infrastructure. Students will analyze and assess business organizations to design the physical and logical components associated with directory services and a network infrastructure. Students determine required network services and server placement for services such as remote access, DNS and LDAP compliant directory services components.
Prerequisite(s): CPTR2272

CPTR2270 Web Engineering II 3 2/1/0
This course covers advanced programming of professional Web pages for the business environment. Topics will include Web-interactivity, security, Web site management, Internet servers and e-commerce. Focus will be given to server-side programming languages such as PHP and ASP.Net and Web to database connectivity.
Prerequisite(s): CPTR1170

CPTR2272 Network Operating Systems 3 2/1/0
This course teaches functions of a network operating system so the student can effectively maintain and manage a network. The student learns how to establish and oversee the operations of a network, create logins, design and establish directory structures and implement security.
Prerequisite(s): CPTR1138 or CPTR1148 or CSEC1104

CPTR2274 Network Administration 3 2/1/0
This course teaches functions of the Novell network operating system so the student can effectively maintain and manage a network. The student learns how to establish and oversee the operations of a network, create users, design and establish directory structures and implement security. Students also learn how to create login scripts, select network applications and follow archiving procedures.
Prerequisite(s): CPTR1108

CPTR2278 Microcomputer Graphics 3 1/2/0
This course covers the creation of business graphics with microcomputer software packages. Types of charts covered include text, pie, bar/line, freeform and organization. Students learn to create standard applications such as maps, posters, brochures and slideshows. Other considerations such as networking and printing are covered.
Prerequisite(s): CPTR1148, ADMS1112, ADMS1152

CPTR2280 WAN Administration 3 2/1/0
This course deals with network communication problems on a very large scale. Students learn how to design, configure and manage systems designed for WANs.
Prerequisite(s): CPTR1108, CPTR1148

CPTR2282 E-mail Administration 3 2/1/0
The E-mail Administration course provides students with the skill sets to design, install, troubleshoot, secure and perform daily administration for a directory services integrated e-mail system. Students learn how to use cryptographic authentication techniques, analyze e-mail server system performance and support 3-mail client packages.
Prerequisite(s): CPTR2272

CPTR2294 Internship 3 0/0/3
This course provides students with the opportunity to apply knowledge and skill sets learned in concurrent coursework. Students will perform activities in an employer supervised industry setting that are consistent with program outcomes. Students will also utilize interpersonal communication skills within the context of applying knowledge and skill sets.
Prerequisite(s): CPTR1138

CPTR2296 Topics in Computers 3 1/2/0
The goal of this course is to introduce students to a computer topic chosen from a wide range of classic and state-of-the-art research, techniques, systems and technologies in the field of computer programming or networking. Topics will vary each semester. Course may be repeated for credit with a change in subtitle.
Prerequisite(s): None

CRJU1101 Intro to Criminal Justice 3 3/0/0
This course serves as an introduction to the American criminal justice system including police, courts and correctional systems. Minnesota POST objectives are also covered in this course.
Prerequisite(s): None

CRJU1102 Policing and Practices 3 3/0/0
An introduction into the development of American policing and of the modern roles and functions of police in a democratic society. These roles and functions include responsibilities in peacekeeping, law enforcement, community policing and customer service.
Prerequisite(s): None

CRJU1104 Juvenile Justice and Delinq 3 3/0/0
This course covers the study of juvenile delinquency, the theories of causation and the methods of corrections. It also examines the juvenile court and correctional systems. Minnesota juvenile law will be explored as it relates to the POST objectives.
Prerequisite(s): None

CRJU1106 Corrections/Probation 3 3/0/0
This course examines historical and contemporary correctional theories and programs with emphasis on the current organizational structure. Probation, parole and correctional alternatives are also explored.
Prerequisite(s): None

CRJU1107 Criminal Law/Proc for Corrections 3 3/0/0
This course focuses on aspects of Minnesota and North Dakota criminal code, familiarization with Minnesota and North Dakota civil law impacting jails and sheriff's departments, constitutional law (especially focusing on 8th Amendment rights) and Minnesota/North Dakotas rules for procedure regarding correctional facilities.
Prerequisite(s): None

CRJU1108 Physical Control Tactics/Corrections 3 3/0/0
This course deals with use of force issues relating to correctional officers, defensive tactics and control techniques, proper restraint techniques and less-than-lethal weapons training. Lecture and practical application are included in the course.
Prerequisite(s): None

CRJU1109 Law Enforce/Behave Sci 3 3/0/0
This course is devoted primarily to Minnesota POST objectives including, but not limited to cultural awareness, stress management, domestic abuse, crisis intervention, communication, bias-motivated crimes, victims, ethics and human behavior.
Prerequisite(s): None

CRJU1117 Special Topics CJ 3 3/0/0
This course looks at a variety of contemporary issues that are considered to be "hot spots" in law enforcement and criminal justice such as police pursuits, deadly force, gangs, terrorism, etc.
Prerequisite(s): None

CRJU2201 Criminal Law 3 3/0/0
This is a course in substantive law, including the elements of major crimes and possible legal defenses. This course also familiarizes students with the Minnesota criminal statutes focusing on Minnesota POST objectives.
Prerequisite(s): CRJU1101

CRJU2202 Criminal Procedures 3 3/0/0
This course covers the study of constitutional law and criminal procedures utilizing the opinions of the United States Supreme Court and the Minnesota rules of criminal procedure. Emphasis is placed on the Constitutional guidelines for law enforcement, rules of arrest, search and seizure and the Minnesota Rules of Criminal Procedure.
Prerequisite(s): Enrollment in the AS program or approval of the CJ Coordinator

CRJU2206 Police Report Writing 3 3/0/0
This course provides the technical understanding and practical application in basic police report writing, field note taking and standardized report forms commonly used by law enforcement. Emphasis is placed on developing a clear, concise style in expressing factual, relevant information in an acceptable format relevant to criminal case procedures.
Prerequisite(s): ENGL1101 or GSCO1102

CRJU2208 Criminal Investigations 4 4/0/0
This course covers the methodology of criminal investigations from the preliminary investigation to the court proceedings. It also covers evidence recognition, collection and preservation. Police reporting relevant to investigations is also covered.
Prerequisite(s): Enrollment in the AS Program or approval of the CJ Coordinator

CRJU2210 Intro to Criminalistics 3 3/0/0
This is an introduction to the principles involved in the application of scientific and technical methods used in the discovery, review and evaluation of physical evidenceas well as the interpretation of evidence and linkage to suspects.
Prerequisite(s): Enrollment in the AS Program or approval of the CJ Coordinator

CRJU2235 Criminal Justice Internship 1-4
This is a practical learning experience in criminal justice in the area of the student's interest. This course is usually scheduled after the student has completed one full year of course work.
Prerequisite(s): None

CSCI1101 Computer Essentials 1 1/0/0
This course is intended for those with no or minimal computer skills. Basic computer terminology, including hardware and software; basic microcomputer operating systems, Internet and e-mail operations will be covered. Introductory word processing skills will be taught using one of the industry's common word processing packages. No credit given if taken after another computer course.
Prerequisite(s): None

CSCI1120 Computer Programming Basic 3 3/0/0
Course focuses on programming and problem-solving techniques using the BASIC (Visual) programming language in a structured format. Topics will include loops, subroutines and files.
Prerequisite(s): MATH0090

CSCI1121 Computer Science I 4 4/0/0
An introduction to computer science, with problem solving, algorithm design and structured programming using a modern programming language. Emphasis on learning how to design, code, debug and document programs using techniques of good programming style. Includes laboratory. This course is intended primarily as a first course for computer science majors and/or minors.
Prerequisite(s): MATH1020

CSCI1122 Computer Science II 4 4/0/0
A continuation of CSCI1121. Advanced concepts of programming including an introduction to data structures, analysis of algorithms, program robustness and program correctness.
Prerequisite(s): CSCI1121 and MATH1114, or a minimum score of 14 on mathematics placement test

CSCI1155 Cpt Utilization/Business and Society 3 3/0/0
This course is designed to provide a technical background for understanding the use of computers in the real world. The course will cover both hardware and software and their applications in the world today. One of the highest rated commercially available applications software packages will be used to gain skills necessary for word processing, electronic spreadsheets, databases and presentations. Students will use the Internet and electronic mail on a regular basis.
Prerequisite(s): Basic typing and limited computer knowledge

CSCI1205 Network Fundamentals 4 4/0/0
This is the first course in a four-course, HTML-based curriculum that focuses on TCP/IP ethernet routed and switched networks. Through the four-course program, students can learn the information needed to prepare them for the Cisco Certified Networking Associate (CCNA) exam (an industry certification that will position students for immediate job openings or prepare them for computer engineering and science-focused college studies).
Prerequisite(s): None

CSCI1206 Router Theory/Technology 3 3/0/0
This is the second course in a four-course, HTML-based curriculum that focuses on TCP/IP ethernet routed and switched networks. Through the four-course program, students can learn the information needed to prepare them for the Cisco Certified Networking Associate (CCNA) exam (an industry certification that will position students for immediate job openings or prepare them for computer engineering and science-focused college studies).
Prerequisite(s): CSCI1205

CSCI1207 Adv Routing and Switching 3 3/0/0
This is the third course in a four-course, HTML-based curriculum that focuses on the TCP/IP ethernet routed and switched networks. Through the four-course program, students can learn the information needed to prepare them for CISCO Certified Networking Associate (CCNA) exam (an industry certification that will position students for immediate job openings or prepare them for computer engineering and science-focused college studies).
Prerequisite(s): CSCI1206

CSCI1208 Adv Proj Based Learning 3 3/0/0
This is the fourth course in a four course, HTML-based curriculum that focuses on TCP/IP ethernet routed and switched networks. Through the four course program, students can learn the information needed to prepare them for the CISCO Certified Networking Associate (CCNA) exam (an industry certification that will position students for immediate job openings or prepare them for computer engineering and science-focused college studies).
Prerequisite(s): CSCI1207

CSCI2010 JAVA Programming 4 4/0/0
Programming and problem solving using the Java programming language. This course includes substantial programming projects and is designed for the student with programming experience. Topics include language syntax, loops, conditional statements, object-oriented concepts, input/output, GUIs and threads.
Prerequisite(s): MATH1010 plus CSCI1120 or CSCI1121 or previous programming experience

CSEC1102 Careers in Information Systems 1 1/0/0
This course is for students who have chosen or who are interested in computer-related careers. Students will research careers in Information Technology including job duties, various job titles, salary range, employment and advancement prospects and skills and training required. Students in this course will complete individual college and career planning and goal setting plans.
Prerequisite(s): None

CSEC1104 PC Hardware and Software 4 2/2/0
This course covers the configuration and operation of microcomputer systems including hardware components and operating systems software. Topics include hardware and software compatibility, system architecture, troubleshooting and diagnosis and basic repair, replacement and upgrades of microcomputer hardware and software components.
Prerequisite(s): None

CSEC1110 Fundamentals of IT Security 3 2/1/0
This course introduces the basics of network security. The student will be introduced to network vulnerabilities and threats and how to safeguard computer networks from those vulnerabilities and threats. This course will expose the student to network security planning, network security technology, network security organization and legal and ethical issues associated with network security.
Prerequisite(s): None

CSEC2202 Introduction to Wireless Networking 3 2/1/0
This is an introductory course that will focus on the design, planning, implementation, operation and troubleshooting of wireless networks. It covers a comprehensive overview of technologies, security and design best practices with particular emphasis on hands-on skills.
Prerequisite(s): None

CSEC2204 Managing Directory Services 3 2/1/0
This course is designed to further the student's understanding of directory services. Directory services provide a central repository for the information available on the network. The student will learn that the first function of the directory is to provide information about objects in the directory including users and resources such as file shares, printers, or e-mail boxes. In addition, the student will learn that the information contained in the directory is crucial for the correct and secure operation of the network.
Prerequisite(s): CPTR2272

Course #	CourseTitle	CR	Lec/Lab/OJT

CSEC2210 Security Breaches and Countermeasures 3 2/1/0
This course introduces the student to the various methodologies for attacking a network. The student will be introduced to concepts, principles and techniques, supplemented by hands-on exercises for attacking and disabling a network. The course will emphasize network attack methodologies with the emphasis on student use of network attack techniques and tools.
Prerequisite(s): CSEC1110

CSEC2212 Web Security 3 2/1/0
This course will give students hands-on training in securing Web communications and Web sites. Students will learn the common vulnerabilities of Web sites, implementing e-business security policies, identifying security threats, developing countermeasures and managing the deployment of security solutions.
Prerequisite(s): CPTR 2272 and CPTR 2224

CSEC2216 Advanced Routing 4 2/2/0
This course covers advanced IP addressing techniques, Ethernet segmentation and the use of VLAN technology, intermediate routing protocols and WAN technology and terminology. Topics covered are: switching; virtual lans; network address translation; dynamic host control protocol; variable length subnet masking, the OSPF, EIGRP routing protocols; and various WAN connection solutions.
Prerequisite(s): CPTR1118

CSEC2218 Disaster Recovery 2 1/1/0
This course includes preparation of a disaster recovery plan, implementation of the plan and recovering from a disaster. This course takes an enterprise-wide approach to developing a disaster recovery plan. Students will learn how to restore a network in the event of a disaster.
Prerequisite(s): CSEC1110

CSEC2222 Network Security Design 3 2/1/0
This course will give the student the opportunity to conduct a vulnerability analysis upon a network in order to practice or refine the attack methodologies with the hacker tools and techniques to which the student was exposed during the previous program courses. The student must demonstrate the ability to design, plan and execute a vulnerability analysis against an organization network. The student must prepare a written report and mode of the security design, attack methodology, tools and techniques.
Prerequisite(s): CSEC2210

CSEC2226 Managing Messaging Services 3 2/1/0
This course is an introduction to messaging and collaboration services for systems administrators. This course will provide a strong foundation for implementing and administering corporate messaging systems. It will also cover methods for filtering and protecting the e-mail server, including disaster recovery.
Prerequisite(s): None

CSEC2228 Network Defense 3 2/1/0
This course introduces the student to the various methodologies for defending the network. The student will be introduced to the concepts, principles, type and topologies of firewalls to include packet filtering, proxy firewalls, application gateways, circuit gateways and stateful inspection.
Prerequisite(s): CSEC2210

CSEC2230 Computer Forensics 3 2/1/0
This course provides the student with a comprehensive understanding of computer forensics and investigation tools and techniques. All major personal computer operating system architectures and disk structures will be discussed, as well as available computer forensic hardware and software tools. The student will also learn the importance of digital evidence controls and how to process crime and incident scenes. The student will learn the details of data acquisition, computer forensic analysis, e-mail investigations, image file recovery and investigative report writing. The course provides hands-on assignments that teach you about theory as well as the practical application of computer forensic investigation.
Prerequisite(s): None

CTEC1102 Technology and Organization 3 2/1/0
This course will focus on technology as it relates to management and the organization and the importance of integrating these three elements help the organization achieve its business goals. Students will study the role of technology in transforming business and management and the strategic role that information systems play in today's marketplace.
Prerequisite(s): None

CTEC1104 Technical Research 3 2/1/0
Students will research technical software applications and hardware products using trade journals, Internet resources, product documentation and contacts with vendors and product developers. The focus will be on using research to solve customer difficulties with hardware, software and the integrated systems.
Prerequisite(s): GSCI1108

CTEC1106 Helpdesk Operations 3 2/1/0
Students will study customer support procedures and organization as it applies to help desk operations and will apply this knowledge to providing phone and direct support to end-users as part of the College's Help Desk. Students will participate in classroom discussions on their experience and will document problems and solutions. Students will demonstrate effective communication and customer service skills.
Prerequisite(s): None

CTEC2204 Adv Technical Support 3 2/1/0
This course will emphasize advanced technical support topics, such as project management, product development, software evaluation and selection, technical writing and end-user training. Students will apply their technical knowledge and experience to actual case studies.
Prerequisite(s): CTEC1106

Course #	CourseTitle	CR	Lec/Lab/OJT

CTEC2240 Technical Support Internship 3 0/0/3
This is a hands-on course in a computer industry setting. The student will apply skills, knowledge and behaviors acquired in prior courses to the computer business situation. The student will provide phone and/or direct support to computer customers and gain a working knowledge of the technical analyst position.
Prerequisite(s): CTEC2204

CULN1102 Intro to Foodservice Prep 4 4/0/0
This course covers terminology, equipment, basic food products and cooking techniques, kitchen safety and sanitation certification for the food service industry.
Prerequisite(s): None

CULN1104 Soups, Stocks and Sauces 2 2/0/0
This course covers the introduction and application of many soups, stocks and sauces that are the basis for the preparation of many food items that appear on restaurant menus.
Prerequisite(s): None

CULN1106 Salad and Baking Lab 6 0/6/0
This course covers food production in the salad and baking areas in food service with a practical hands-on application required for anyone to work in the pastry/baking area as well as the pantry/salad area in a commercial kitchen.
Pre/Corequisite(s): CULN1102

CULN1112 Poultry and Seafood 3 3/0/0
This course covers the introduction to poultry, fish and seafood from basic classifications, preparation methods, handling techniques and accompaniments.
Prerequisite(s): None

CULN1118 Fry and Broiler Lab 5 0/5/0
This course covers the skills required of a cook working various positions in a commercial food service production line, focusing on the equipment and techniques used. Food product information is also included in this course.
Pre/Corequisite(s): CULN1102

CULN1120 Kitchen Math and Formulas 1 1/0/0
This course is an assessment and review of math skills necessary for food-service workers. Functions with whole numbers, fractions, decimals and percentages are covered and applied to food-service calculations and formulas.
Prerequisite(s): None

CULN1122 Sanitation Certification 1 1/0/0
This course covers the basics of safe food handling procedures, safe food storage, cleaning and sanitizing and purchasing and receiving safe food. This course follows the FDA Model Food Code, and students will test for the Servsafe Certification exam at the conclusion of the class.
Prerequisite(s): None

CULN1124 Menu Planning/Merchandising 2 2/0/0
This course covers the introduction to menus, including the design, copywriting and layout as well as the application of food service marketing principles on which the success or failure of the modern restaurant depends.
Prerequisite(s): None

CULN2202 Meats 2 2/0/0
This course covers the identification of meat cuts, quality standards and yield standards of meats as used in the food service industry.
Prerequisite(s): None

CULN2204 Breakfast Preparation Lab 5 0/5/0
This course covers the hands-on application of the skills required by a breakfast cook, ranging from basic egg cookery to breakfast buffet set-up and service and the preparation of food products normal to the typical breakfast menu of a restaurant.
Pre/Corequisite(s): CULN1102

CULN2206 Buffet and Garde Manger Lab 3 0/3/0
This course covers the food art portion of entry-level positions in food service. It also provides an exposure to buffet service and some of the classical forms of food presentation and display.
Pre/Corequisite(s): CULN1102

CULN2214 Quantity Food Prep and Butcher Lab 6 0/6/0
This course covers the hands-on preparation of a wide variety of food as routinely done by the dinner cook or prep cook in many food service operations. It also covers the hands-on application of meat cutting and processing, as well as other functions performed in the butcher shop area of the food service operation.
Pre/Corequisite(s): CULN1102, CULN1104

CULN2222 Prod and Planning Supervision Lab 6 2/4/0
This course provides the practical application of the principles of supervision that are part of a chef's daily routine. This includes application of learned skills in the areas of menu writing, purchasing, storeroom operation and merchandising.
Pre/Corequisite(s): CULN1102, CULN1104

CULN2228 Food Cost Control 3 3/0/0
This course covers the cost structure of food service operations and provides methods and applications to monitor and control food and labor costs.
Pre/Corequisite(s): CULN1102

CULN2234 Operation/Legal Aspects Hospitality Industry 2 2/0/0
This course covers operational and legal aspects relevant to the hospitality industry. Topics include: labor relations and staff selection, food and liquor liability, patron's civil rights, federal regulations, security, franchising and contracts.
Prerequisite(s): None

CULN2236 Ethnic Foods 2 1/1/0
This course covers the history, origin and preparation methods of food products of various countries and ethnic groups.
Pre/Corequisite(s): CULN1102

CULN2238 Confectionery Art 2 1/1/0
This course covers the skills and techniques required to decorate and present cakes, pastries and desserts.
Pre/Corequisite(s): CULN1102, CULN1106

CULN2240 Internship 2 0/0/2
This course provides an internship experience that allows the student to apply what has been learned in the classroom and practiced in the lab. The internship will take place in a commercial food service establishment under the supervision of the employer/designee.
Pre/Corequisite(s): CULN1106, CULN1118

CUST1102 Communication and the Customer 3 3/0/0
This course will help participants learn the why's and how's of customer communication and the impact this communication has on current and future business. Participants will learn essential interpersonal communication skills as well as the appropriate time and situation in which to use these skills. Participants will also identify and practice the necessary behaviors to employ in customer situations. Participants will learn software (PowerPoint and MS Word) to help them improve and enhance communication.
Prerequisite(s): None

CUST1104 Window and Door Construction Methods and Knowledge3 3/0/0
This course is designed to introduce the student to the variety of materials, machining and assembling processes and finishing techniques used in the construction and production of window and door products. Also, emphasis will be placed on interpretation of the codes and standards which must be followed in the construction process.
Prerequisite(s): None

CUST1106 Custom Window and Door CAD and Design 3 3/0/0
This course is designed to introduce the student to computer aided drafting principles. Emphasis will be placed on the proper use of conventional drafting practices in layout, view selection, scale, dimensioning and line type while creating and editing drawings with the computer program. Visualization methods will be introduced to enhance aesthetic comprehension.
Prerequisite(s): None

CUST1108 Drafting Principles for Windows and Doors 3 3/0/0
This course is designed to enable the student to interpret the various views, notes, dimensions and tolerances associated with a typical window drawing. Emphasis will be placed on the review of specialty features and the importance of detail and aesthetic value in conjunction with the overall project.
Prerequisite(s): None

CUST1120 Leadership Mindset I 3 3/0/0
Participants will learn concrete skills and methods to enrich their lives thus helping them become more productive and contributing employees and company leaders. They will learn a system of self-analysis that will readily disclose what has been standing between them and their "success" in the past. At completion of this course, participants will understand and be able to apply the philosophy that will better prepare them to enjoy the higher estates which always have been and always will be denied to all those except "those who are ready for them."
Prerequisite(s): None

CUST1130 Intro to Inventor 3 3/0/0
This class introduces the student to the features and functions of the Autodesk Inventor program for 3D solids and parametric modeling. The participant will become familiar with the computer aided drafting and sketching tools that will enable assembly and subassembly components to be linked and joined into a completed model. Extensive hands-on drafting examples are performed in and out of the classroom to enhance the learning process.
Prerequisite(s): None

CUST1800 Intro to MIG Welding Lab 2 0/2/0
This class introduces students to welding safety and various welding and cutting fundamentals. The course provides the theory of welding with the primary focus on the MIG (metal inert gas) process and the training to develop the necessary skills to weld steel.
Prerequisite(s): None

CVNP2210 Voice, Video and Data Convergence 4 2/2/0
This course covers the theory, configuration and analysis of voice, video and data converged networks. Topics covered in this course include the medium choices of convergence, types of protocols that are commonly used, network engineering and troubleshooting converged networks.
Prerequisite(s): CPTR1108 or TECH1106

CVNP2212 VoIP / IP Telephony 4 2/2/0
This courses covers the theory, configuration and monitoring of voice communications systems and voice signals transported over Internet Protocol. Topics covered in this course include components of a business communications systems, voicemail systems, call features, call control protocols, codec algorithms and Quality of Service techniques. Installation and configuration for business communications systems, media gateways, IP telephony gatekeepers, Soft switch and soft phones.
Prerequisite(s): CPTR1108 or TECH1106

CVNP2220 Video Over Internet Protocol 4 2/2/0
In this course the student will learn how to encode and decode video IP signals to be transported over converged networks and connect equipment to perform associated functions. The student will program and provision routers and set-top boxes to required specifications and protocols within a broadband high-speed Internet connection. The student will monitor call-control signalling and network traffic, analyze packet throughput and troubleshoot entire network for quality and reliability. Video conferencing, IPTV, HDTV, 3G cell phone video, content protection and other new technology formats will be explored and researched to give the student a better understanding of video over Internet protocol technologies.
Pre/Corequisite(s): CPTR1108 or TECH1106

CVNP2222 Voice Video Over IP Systems Project 3 1/2/0
The Voice, Video over Internet Protocol course is a capstone course for the Voice Video over Internet Protocol Certificate. Students will work on projects to assess their ability to design and configure a converged network, converge applications onto the network and analyze, test and troubleshoot the applications running over an IP network. The student will demonstrate professional communications skills presenting design and implementation of the project and performing training on the system.
Prerequisite(s): CVNP2220 or CVNP2212

DCNH1116 CNH SOE I 3 0/0/3
Students will apply skill sets previously learned specific to Case New Holland equipment and will also be introduced to curriculum skill sets to be delivered in future semesters. Skill sets will be identified in a training plan developed by industry and instructor.
Prerequisite(s): Instructor and sponsor approval

DCNH1118 CNH SOE II 7 0/0/7
Students will apply skill sets previously learned specific to Case New Holland equipment and will also be introduced to curriculum skill sets to be delivered in future semesters. Skill sets will be identified in a training plan developed by industry and instructor.
Prerequisite(s): Instructor and sponsor approval

DCNH2210 Mobile Hydraulics 4 1/3/0
This course covers the hydraulic components specific to CNH farm and heavy equipment. This will include hydrostatic transmission, electric over hydraulic control valves and electronic control components. It will also include troubleshooting of live units with proper testing equipment used in up-to-date service centers.
Prerequisite(s): DSET1112

DCNH2218 CNH SOE III 3 0/0/3
Students will apply skill sets previously learned specific to Case New Holland equipment and will also be introduced to curriculum skill sets to be delivered in future semesters. Skill sets will be identified in a training plan developed by industry and instructor.
Prerequisite(s): Instructor and sponsor approval

DCNH2230 Adv Engines and Fuel Systems I 3 1/2/0
This course is designed to give the student an understanding of the theory, operation, troubleshooting and repair of diesel engine intake, exhaust and fuel systems used in CNH equipment.
Prerequisite(s): DSET1132, DSET1134

DCNH2232 Adv Engines and Fuel Systems II 3 1/2/0
This course includes repair and overhaul procedures for engines used in CNH equipment.
Prerequisite(s): DCNH2230

DCNH2234 Adv Engines and Fuel Systems III 3 1/2/0
This course includes the operation, troubleshooting, repairing and programming of electronically controlled diesel engines used in CNH equipment. The students will perform critical tune-up and adjustment procedures, including OEM and computer-based troubleshooting procedures.
Prerequisite(s): DCNH2232

DCNH2238 Transmissions and Drive Systems 4 1/3/0
This course covers procedures to test, troubleshoot and rebuild power shift and other specialized transmissions used on agricultural equipment and industrial powered equipment as it relates to CNH equipment. This course also includes final drives and related components including removal, repair, installation and adjustment of major units and components.
Prerequisite(s): DSET1110

DEER1116 John Deere SOE I 3 0/0/3
Students will apply skill sets previously learned specific to John Deere equipment and will also be introduced to curriculum skill sets to be delivered in future semesters. Skill sets will be identified in a training plan developed by industry and instructor.
Prerequisite(s): Instructor and sponsor approval

DEER1118 John Deere SOE II 7 0/0/7
Students will apply skill sets previously learned specific to John Deere equipment and will also be introduced to curriculum skill sets to be delivered in future semesters. Skill sets will be identified in a training plan developed by industry and instructor.
Prerequisite(s): Instructor and sponsor approval

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DEER2210 Mobile Hydraulics 4 1/3/0
This course covers the hydraulic components specific to John Deere heavy equipment. This will include hydrostatic transmission, electric over hydraulic control valves and electronic control components. It will also include troubleshooting of live units with proper testing equipment used in up-to-date service centers.
Prerequisite(s): DSET1112

DEER2218 John Deere SOE III 3 0/0/3
Students will apply skill sets previously learned specific John Deere equipment and will also be introduced to curriculum skill sets to be delivered in future semesters. Skill sets will be identified in a training plan developed by industry and instructor.
Prerequisite(s): Instructor and sponsor approval

DEER2230 Adv Engines and Fuel Systems I 3 1/2/0
This course is designed to give the student an understanding of the theory, operation, troubleshooting and repair of diesel engine intake, exhaust and fuel systems used in John Deere industrial equipment.
Prerequisite(s): DSET1132, DSET1134

DEER2232 Adv Engines and Fuel Systems II 3 1/2/0
This course includes repair and overhaul procedures for engines used in John Deere industrial equipment.
Prerequisite(s): DEER2230

DEER2234 Adv Engines and Fuel Systems III 3 1/2/0
This course includes the operation, troubleshooting, repairing and programming of electronically controlled diesel engines used in John Deere industrial equipment. The students will perform critical tune-up and adjustment procedures, including OEM and computer-based troubleshooting procedures.
Prerequisite(s): DEER2232

DEER2238 Transmissions and Drive Systems 4 1/3/0
This course covers procedures to test, troubleshoot and rebuild power shift and other specialized transmissions used on construction equipment as it relates to John Deere. This course also includes final drives and related components including removal, repair, installation and adjustment of major units and components.
Prerequisite(s): DSET1110

DENT1100 Biomaterials 3 2/1/0
This is a foundation course that provides in-depth instruction and practice in identifying the materials, their purposes and properties as they are used during chairside and laboratory procedures. Material manipulation is a critical requirement of the lab component of this course. Laboratory safety measures and infection control are emphasized.
Prerequisite(s): Acceptance into the Dental Assisting or Dental Hygiene program

DENT1102 Dental Anatomy Lecture 2 2/0/0
The lecture portion of the course introduces the student to basic terminology for understanding the structures that form the foundation for tooth function, normal anatomy of the oral cavity and tooth and root morphology. Special topics include survey of dental anomalies, cavity classifications and forensic dentistry.
Prerequisite(s): None

DENT1103 Introduction for Dental Health Care Providers 2 1/1/0
The student will be introduced to topics germane to the practice of dentistry. Topics to be covered include blood-borne pathogens, concepts standards and procedures of infection control, medical emergencies, first aid in the dental setting and patient privacy rights.
Prerequisite(s): Acceptance into either Dental Assisting or Dental Hygiene program.

DENT1104 Dental Health Care Providers II 1 1/0/0
This course will build on student learning from Intro to Healthcare Providers I. Students will be challenged to go beyond definitions and practices and understand the "why and how" of blood borne pathogens, concepts, standards and procedures of infection control, medical emergencies, first aid in the dental setting and patient privacy rights.
Prerequisite(s): DNHY1103

DENT1106 Dental Radiology Lecture 3 3/0/0
This course includes an overview of the history of x-ray development and a review of basic mathematics and radiation physics as they apply to the x-ray production. Radiographic film and digital image quality are explored. Explanation of darkroom chemistry, radiation asepsis and safety are covered as well as interpretation of normal anatomy and dental film and digital image analysis, radiographic interpretation and evaluation and quality assurance issues.
Prerequisite(s): None

DENT1108 Dental Radiology Lab 2 0/2/0
This course puts into practice knowledge gained from DENT1106 Dental Radiology Lecture course. Dental Assisting students expose full-mouth series (film based and digital), extra-oral and specialized radiographs on adult and child patients or mannequins. Emphasis is placed on protection against x-ray hazards and record keeping. Students will also process, mount and evaluate radiographs for diagnostic value. In addition, they will use radiographs to explain dental health and treatment plans to patients. Lab sessions will allow students to develop radiographic skills and clinic sessions create an opportunity for students to enhance their efficiency in radiographic technique.
Prerequisite(s): None

DENT1114 Dental Radiology 4 2/2/0
The lecture component of this course includes an overview of the history of x-ray development, a review of basic mathematics and radiation physics as they apply to x-ray production and radiographic quality, darkroom chemistry, radiation hygiene and safety, interpretation of normal anatomy and dental film analysis, radiographic interpretation and evaluation and quality assurance issues. Lab sessions will allow the student to develop radiographic skills and clinic sessions create an opportunity for students to enhance their efficiency in radiographic technique.
Prerequisite(s): Acceptance into the Dental Assisting or Dental Hygiene program

DENT1122 Dental Ethics and Jurisprudence 1 1/0/0
This course focuses on the ethical and legal implications of providing dental, dental assisting and dental hygiene care. The practice acts for Minnesota and North Dakota will also be studied.
Prerequisite(s): Acceptance into either Dental Assisting or Dental Hygiene program.

DNAS1103 Clinical Assisting I 4 2/2/0
This course includes an orientation to the history of dentistry, educational requirements, credentialing opportunities and professional associations for dental and allied dental careers. The student is provided with instruction in the use of dental equipment, instruments and supplies; principles of four-handed dentistry; concepts of infection control and instrument recirculation; management of medical and dental emergencies; and procedures related to oral diagnosis, preventive dentistry and restorative dentistry.
Prerequisite(s): Corequisite: DENT1100

DNAS1105 Clincial Assisting II 5 1/0/4
Dental Assisting students apply skills developed in Clinical Assisting I in a clinical setting. This course prepares the student to adapt chairside skills to assisting with dental specialties as they are performed in the general practice. Students will apply skills developed in Dental Anatomy, Biomaterials, Biodental Science and Dental Practice Management as they apply to the practice of dental assisting.
Prerequisite(s): DNAS1103

DNAS1106 Biodental Science 3 3/0/0
This course provides an introduction to anatomy and physiology, dental histology and empbryology, as well as an overview of head and neck anatomy using the universal charting system. It is designed to give the student a basic concept of microbiology and disease transmission, and a survey of oral pathology and pharmacology.
Prerequisite(s): None

DNAS1110 Clinical Assisting Specialties 4 2/2/0
This course introduces the student to the dental specialties of pediatric dentistry, periodontics, oral and maxillofacial surgery, endodontics, prosthodontics (fixed and removable), orthodontics and special needs patients. This course will provide the student with an introduction to the lab and clinical procedures for each of the specialties listed.
Prerequisite(s): DNAS1102, DENT1100

DNAS1114 Dental Prac Management 2 2/0/0
This course provides the student with instruction in the principles and applications that are related to the management of a dental office. Emphasis is placed on managing patient records through computer generated charting, financial records, third party payments, appointment scheduling, inventory and recall systems.
Prerequisite(s): None

DNAS1116 Clinical Assisting Specialties 6 2/4/0
This course introduces the student to the dental specialties of pediatric dentistry, periodontics, oral and maxillofacial surgery, endodontics, prosthodontics (fixed and removables), orthodontics and also special needs patients. This course will provide the student with an introduction to the lab and clinical procedures with each of the specialties listed and an off campus/extramural clinical experience prior to the Clinical Affiliation.
P**rerequisite(s):** DENT1100, DNAS1112

DNAS1119 Advanced Functions 5 2/3/0
This course is designed to provide the student with instruction and practice to perform the clinical competency in the following intra-oral functions approved by the Minnesota Board of Dentistry: taking radiographic exposures, performing mechanical polishing, taking preliminary impressions and bite registrations, applying topical fluoride, placing and removing periodontal dressing, removing excess cement, monitoring nitrous oxide-induced patients, induction of nitrous oxide/oxygen sedation, excess bond removal from orthodontic appliances with rotary instruments and applying pit and fissure sealants. In addition the following intra-oral functions are taught and practiced to laboratory competency: removing sutures, preliminary adaptation of temporary (provisional) crowns, performing selected orthodontic functions, applying bleaching agents and performing approved endodontic procedures.
Prerequisite(s): DNAS1103, DENT1114 and current CPR certification

DNAS1134 Credentialing Exam Prep 2 2/0/0
This course will provide information and guidance to prepare the individual for taking the dental assisting credentialing examinations. The topics included are those that are tested by the national certification and state board registration exams. This course is appropriate for individuals who need to be recredentialed or who are seeking initial credentialing.
Prerequisite(s): Current or returning dental assisting student or must meet the occupational experience for challenging the certification examination

DNAS1142 Clinical Affiliations 5 0/0/5
This is a faculty-supervised course at extramural sites with dentists and dental auxiliaries providing ancillary supervision. The student will be provided with clinical experiences by affiliations in general dentistry and/or specialized practices. Emphasis is on professionalism in performing general chairside and advanced intraoral procedures.
Prerequisite(s): Successful completion of two semesters of the dental assisting curriculum at M State

DNAS1210 Radiology Lab 1 0/1/0
This course puts into practice knowledge gained from DENT 1106 Dental Radiology Lecture course. Dental Assisting students expose full-mouth series (film based and digital), extra-oral and specialized radiographs on adult and child mannequins. Emphasis is placed on protection against x-ray hazards and record keeping. Students will also process, mount and evaluate radiographs for diagnostic value. In addition, they will use radiographs to explain dental health and treatment plans. Lab sessions will allow students to develop radiographic skills and clinic sessions create an opportunity for students to enhance their efficiency in radiographic technique.
Prerequisite(s): Acceptance into the Dental Assisting or Dental Hygiene programs

DNAS1215 Dental Specialties 1 1/0/0
This course introduces the student to the dental specialties of pediatric dentistry, periodontics, oral and maxillofacial surgery, endodontics, prosthodontics (fixed and removable) and orthodontics. This course will provide the student with an introduction to the clinical procedures with each of the specialties listed. Students will research various dental assisting specialties by interviewing dental assistants in specialty practices.
Prerequisite(s): Acceptance into the dental assisting program.

DNHY1100 Biomaterials 3 2/1/0
This is a foundation course that provides in-depth instruction and practice in identifying the materials, their purposes and properties as they are used during chairside and laboratory procedures. Material manipulation is a critical requirement of the lab component of this course. Laboratory safety measures and infection control are emphasized.
Prerequisite(s): Acceptance into the Dental Hygiene program or permission of program coordinator

DNHY1103 Introduction for Dental Health Care Providers 2 1/1/0
The student will be introduced to topics germane to the practice of dentistry. Topics to be covered include blood-borne pathogens, concepts, standards and procedures of infection control, medical emergencies, first aid in the dental setting and patient privacy rights.
Prerequisite(s): Acceptance into M State's dental hygiene program and compliance with the dental department handbook

DNHY1104 Dental Anatomy Lab 1 0/1/0
Lab course which provides opportunities for the student to work with tooth identification and charting systems, intraoral imagery and occlusion assessment. Special topics include survey of dental anomalies, cavity classifications and forensic dentistry.
Prerequisite(s): Acceptance into the Dental Hygiene program

DNHY1105 Dental Health Care Providers II 1 1/0/0
This course will build on student learning from Intro to Healthcare Providers I. Students will be challenged to go beyond definitions and practices and understand the "why and how" of blood borne pathogens, concepts, standards and procedures of infection control, medical emergencies, first aid in the dental setting and patient privacy rights.
Prerequisite(s): DNHY1103

DNHY1106 Head and Neck Anatomy 2 2/0/0
This course is designed to cover the osteology of the skull, the muscles, nerves and blood supply of the head and neck. The salivary glands, TMJ and deglutition are also covered.
Prerequisite(s): Acceptance into the Dental Hygiene program

DNHY1107 Dental Radiology Lecture 3 3/0/0
The lecture component of this course includes an overview of the history of x-ray development, a review of basic mathematics and radiation physics as they apply to x-ray production and radiographic quality, darkroom chemistry, radiation hygiene and safety, interpretation of normal anatomy and dental film analysis, radiographic interpretation and evaluation and quality assurance issues. Lab sessions will allow the student to develop radiographic skills and clinic sessions create an opportunity for students to enhance their efficiency in radiographic technique.
Prerequisite(s): Acceptance into the Dental Hygiene program or permission of program coordinator

DNHY1108 Oral Histology and Embryology 2 2/0/0
This course covers the study of the microscopic anatomy of the oral tissues and the embryonic development of the face and oral cavity with emphasis on the masticatory system.
Prerequisite(s): DNHY1106, DNHY1128

DNHY1109 Dental Radiology Lab 2 0/2/0
This course puts into practice knowledge gained from DNHY 1106 Dental Radiology Lecture course. Students expose full-mouth series (film based and digital), extra-oral and specialized radiographs on adult and pedodontic patients or mannequins. Emphasis is placed on radiation safety practices, infection control and record keeping. Student's will process, mount and evaluate radiographs for diagnostic value and quality. Emphasis is placed on radiological interpretation and patient education. The lab and clinical experiences are designed to create an opportunity for students to enhance their efficiency and quality of their radiographic techniques.
Prerequisite(s): Acceptance into the Dental Hygiene program or permission of program coordinator

DNHY1110 Dent Hygiene Prin I 2 2/0/0
This course introduces the student to dental hygiene with emphasis on theory of preventive dentistry, OSHA standards, disinfectants / sterilants, formation of plaque and calculus, patient assessment and an introduction to the caries process and periodontal assessment.
Prerequisite(s): Acceptance into the Dental Hygiene program

DNHY1112 Dent Hygiene Prac I 3 0/3/0
This course provides an introduction to dental hygiene with emphasis on the practice of preventive dentistry, care and use of equipment, sterilization techniques and an introduction to instrumentation.
Prerequisite(s): Acceptance into the Dental Hygiene program; **Corequisite:** DNHY1110

DNHY1118 Oral Pathology 2 2/0/0
This course covers the study of general processes as well as oral disease processes. Special emphasis is placed on clinical and radiographic recognition of pathology of the oral cavity.
Prerequisite(s): DNHY1106, DNHY1110

DNHY1119 Dent Hygiene Prin II 4 4/0/0
This course is a continuation of DNHY1110 with continuing information on the fundamentals of dental hygiene, record keeping and basic instruction and care of special needs patients.
Prerequisite(s): DNHY1110

DNHY1122 Dental Ethics and Jurisprudence 1 1/0/0
This course focuses on the ethical and legal implications of providing dental hygiene care. The practice acts for Minnesota and North Dakota will be studied.
Prerequisite(s): The student must be enrolled in the dental hygiene program.

DNHY1123 Dent Hygiene Prac II 5 0/5/0
This course is a continuation of DNHY1112 and introduces the student to further instrumentation theory, instrumentation techniques and procedures, clinical protocol, evaluation of medical/dental histories and radiographic survey as prescribed. This course provides opportunities for the student to develop competence in clinical procedures.
Prerequisite(s): DNHY1112; Corequisite: DNHY1116

DNHY1124 Pain Control Lab 2 0/2/0
This course provides the dental hygiene student with the knowledge and skills necessary to administer local anesthesia and other methods of pain control during dental procedures without inducing detrimental physiological side effects.
Prerequisite(s): DNHY1106, DNHY1136

DNHY1130 Dent Hygiene Prin III 1 1/0/0
This course is a continuation of DNHY1116 with emphasis on expanded duties. The course includes the study of rubber dam placement, sealants, orthodontic patients, debonding and intraoral photography.
Prerequisite(s): DNHY1123, Corequisite: DNHY1132

DNHY1132 Dent Hygiene Prac III 1 0/1/0
This course is a continuation of DNHY1123 with emphasis on treatment of lab competencies during this summer session.
Prerequisite(s): DNHY1123, Corequisite: DNHY1130

DNHY1136 Dental Pharmacology 2 2/0/0
This course introduces dental hygiene students to basic drug categories, pharmacological pain control principles and various anesthesia techniques, with special emphasis on a succinct accounting of drugs as they relate to dentistry.
Prerequisite(s): Acceptance into the Dental Hygiene program

DNHY2210 Dent Hygiene Prin IV 2 2/0/0
This course is a continuation of DNHY1130 and introduces the student to dietary counseling, with special emphasis on advanced dental hygiene techniques including periodontal assessment, airbrasive polishing, ultrasonic and sonic instrumentation, root planing, gingival curettage, periodontal dressing and suture removal.
Prerequisite(s): DNHY1130, Corequisite: DNHY2213

DNHY2213 Dent Hygiene Prac IV 6 0/6/0
This course is a continuation of DNHY1132 with emphasis on the treatment of moderate to advanced periodontal disease, the development of speed and an introduction to several advanced dental hygiene techniques.
Prerequisite(s): DNHY1130, DNHY1132

DNHY2219 Periodontology 2 2/0/0
This course covers the pathogenesis, diagnosis and treatment of periodontal disease. Emphasis will include the progression of periodontal disease, diagnostic methods, treatment modalities, advanced instrumentation and the role of the dental hygienist as a periodontal co-therapist.
Prerequisite(s): Acceptance into the Dental Hygiene program

DNHY2220 Dent Hygiene Prin V 1 1/0/0
This course is a continuation of DNHY2210 and dental hygiene patient oral risk assessments. Special focus includes topics of interest to the graduating hygienist including smoking cessation, extra oral / intra oral self exam, resume writing, interview skills, professional development, service to the community and involvement in the professional association.
Prerequisite(s): DNHY2210, **Corequisite:** DNHY2223

DNHY2223 Dent Hygiene Prac V 6 0/6/0
This course is a continuation of DNHY2213 with emphasis on the treatment of moderate to advanced periodontal disease, the development of speed and an introduction to several advanced dental hygiene techniques.
Prerequisite(s): DNHY2213

DNHY2226 Community Dental Hygiene 4 3/1/0
The lecture portion of this course introduces the student to the disciplines and basic principles of dental public health, epidemiological methods and biostatistical measurement and analysis. The lab portion of this course enables the student to plan, implement and evaluate a community dental hygiene research project and participate in a community dental service project and screenings.
Prerequisite(s): Acceptance into the Dental Hygiene program or permission of program coordinator

Course #	CourseTitle	CR	Lec/Lab/OJT

DNHY2232 Dental Hygiene Review 1 1/0/0
This course is designed with emphasis to further refine skills already learned in previous Dental Hygiene courses to enable the student to retake licensure examinations.
Prerequisite(s): DNHY2213

DNHY2240 Clinical Affiliation I 1 0/0/1
This is a Corequisite to DNHY2213 Dental Hygiene Practice IV with an emphasis on clinical rotations off campus to enhance the dental clinical experience in a more work life experience. The students will be able to work on the development of speed and introduced to a variety of dental hygiene experiences.
Corequisite(s): DNHY 2213

DNHY2246 Clinical Affiliation II 1 0/0/1
This is a Corequisite to DNHY2223 Dental Hygiene Practice V with an emphasis on clinical rotations off campus to enhance the dental clinical experience in a more work life experience. The students will be able to work on the development of speed and introduced to a variety of dental hygiene experiences.
Corequisite(s): DNHY2223

DRAF2230 Electrical Systems Technology 3 1/2/0
The objective of this course is to develop the student's knowledge of electrical systems for commercial buildings. Lighting, heat loss, distribution systems, fire alarm systems and introduction to National Electrical Codes are also stressed.
Prerequisite(s): None

DRAF2234 HVAC 2 1/1/0
The objective of this course is to develop a basic understanding of heating/cooling systems and their designs. This course includes the process of bidding, construction management and system coordination.
Prerequisite(s): DRAF2230

DSET1100 Diesel Equipment Fundamentals 2 1/1/0
This course is designed to give the student an understanding of a diesel shop and its working environment. Personal and shop safety will be emphasized. Hand tool, pneumatic tool, precision measuring tool and hardware identification, usage and safety will also be areas of study.
Prerequisite(s): None

DSET1102 Engine Service 3 0/3/0
The students will learn how to disassemble, analyze, rebuild, measure and adjust diesel engines and their components.
Pre/Corequisite(s): TRNS1106

DSET1104 Preventative Maintenance 1 0/1/0
This course covers the equipment areas of truck, agricultural and heavy equipment that require periodic maintenance and inspections along with the service procedures to prevent premature failures.
Prerequisite(s): TRNS1102

DSET1106 Fuel Systems 2 1/1/0
This course covers the fundamentals of diesel engine fuel system identification, minor repair, testing and troubleshooting. Mechanical governor operation, fuel system operation, fuel system/governor adjustments and related engine operations are studied.
Prerequisite(s): TRNS1106

DSET1110 Power Train I 3 1/2/0
This course covers the operating principles, diagnosis and repair of drive train components, including clutches, mechanical transmissions, drive lines and drive axles.
Prerequisite(s): TRNS1102

DSET1112 Hydraulics I 4 2/2/0
This course covers the fundamentals of hydraulic systems. It is an introduction to hydraulic component operation, maintenance, repair and testing. These systems may be used in agricultural, industrial heavy equipment and trucks.
Prerequisite(s): TRNS1102

DSET1114 Vehicle Brakes 3 1/2/0
This course covers hydraulic and air brake system operation, service and diagnosis.
Prerequisite(s): TRNS1102

DSET1116 Fall SOE 3 0/0/3
Students will apply skill sets previously learned specific to their sponsoring dealer's equipment and will also be introduced to curriculum skill sets to be delivered in future semesters. Skill sets will be identified in a training plan developed by industry and instructor.
Prerequisite(s): Instructor approval

DSET1118 Final Drives 2 0/2/0
This course covers final drives and related components including removal, repair, installation and adjustment of major units and components.
Prerequisite(s): TRNS1102

DSET1120 General Shop Serv Ind Study 2 0/2/0
This course is designed by the student and the instructor to provide an opportunity for the student to gain proficiency in selected competency areas and integrate the skills, knowledge and concepts gained in previous coursework. The student, with instructor approval, will prepare a Lab Activity Plan consistent with 32 hours of lab time. The plan should reflect the following course goals, student knowledge, prior coursework and student skill level. The student will complete a Daily Activity Lab worksheet that will represent work completed and prepare a Lab Activities Outcomes worksheet to determine student efforts and success at completing the Lab Activity plan and the course.
Prerequisite(s): TRNS1102, TRNS1104

DSET1122 Diesel Shop Service 3 0/0/3
This course is designed by the student and the instructor to provide an opportunity for the student to gain proficiency in selected competency areas and integrate the skills, knowledge and concepts gained in previous coursework. The student, with instructor approval, will prepare a Lab Activity Plan consistent with 48 hours of lab time. The plan should reflect the following course goals, student knowledge, prior coursework and student skill level. The student will complete a Daily Activity Lab worksheet that will represent work completed and prepare a Lab Activities Outcomes worksheet to determine student efforts and success at completing the Lab Activity plan and the course.
Prerequisite(s): TRNS1102

DSET1124 Diesel Shop Management 1 1/0/0
This course provides students an opportunity to visit John Deere, Case New Holland or general shops and work with on-site instructors relative to management procedures including parts, ordering inventory, repair order writing, payroll, employee-employer relations, customer relations and communication skills.
Prerequisite(s): None

DSET1130 Trans Elec/Start/Charge 4 2/2/0
This course is an introduction to electrical systems. Students will learn how to use DVOMs and their applications. Students will study electrical theory including Ohm's law and its application to electrical systems. The course also introduces service procedures necessary to repair charging and starting system components. Electrical principles are applied to test and troubleshoot complete circuits as well as components of each. Fundamental rebuilding principles and system analysis are emphasized. Safe battery testing and service are performed.
Prerequisite(s): None

DSET1132 Intro to Engine Theory 2 2/0/0
This course introduces the theory of today's diesel engines, including operation, repair and maintenance. Students will learn the proper industry procedures for removing, replacing, diagnosing/troubleshooting, rebuilding and assembling of diesel engines.
Pre/Corequisite(s): DSET1134

DSET1134 Intro to Engines 3 0/3/0
This course teaches how to disassemble, analyze, rebuild, measure and adjust diesel engines and their components.
Pre/Corequisite(s): DSET1132

DSET1140 SOE I 7 0/0/7
Students will apply skill sets previously learned related to truck and/or other diesel-powered equipment and may be introduced to curriculum skill sets to be delivered in future semesters. Skill sets will be identified in a training plan developed by industry and instructor.
Prerequisite(s): Instructor approval

DSET1144 Electrical Troubleshooting 3 1/2/0
This course is a hands-on troubleshooting course where students will apply knowledge of DSET1130. Students will be required to troubleshoot and repair various equipment and vehicles.
Pre/Corequisite(s): DSET1130

DSET2202 Advanced Engines 4 1/3/0
This course covers the procedures for performing major repair/rebuilding of diesel engines. This includes mechanical procedures, concepts, tools and test equipment for engine repair/rebuilding.
Prerequisite(s): DSET1102

DSET2204 Adv Electrical Systems 3 1/2/0
This course teaches failure analysis of electrical systems, the recognition of causes of failures and how to interpret a wiring diagram. Use of electrical meters to diagnose, locate and repair failures will be practiced. This course covers heavy duty electrical components, rebuilding, inspection and testing.
Prerequisite(s): DSET1130, TRNS1102

DSET2206 Electronic Controls 3 1/2/0
This course covers electronic components used to control engines, transmissions, brakes and hydraulics used in modern equipment. This training will include system analysis, testing, troubleshooting and replacement of components of operating systems.
Prerequisite(s): DSET1130, TRNS1102

DSET2210 Mobile Hydraulics 4 1/3/0
This course covers the hydraulic components used in farm and heavy equipment and trucks. This will include hydrostatic transmission, electric over hydraulic control valves and electronic control components. It will also include troubleshooting of live units with proper testing equipment used in up-to-date service centers.
Prerequisite(s): DSET1112

DSET2212 Power Trains II 3 1/2/0
This course covers procedures to test, troubleshoot and rebuild powershift and other specialized transmissions used on farm tractors and heavy diesel powered equipment.
Prerequisite(s): DSET1110

DSET2214 Suspension and Alignment 3 1/2/0
This course will cover the procedures used in rebuilding, inspection and alignment of steering systems, leaf spring, equalizing beam and air spring suspensions.
Prerequisite(s): TRNS1102

DSET2218 Advanced Fuels 3 1/2/0
This course covers the application of the electronic fuel systems on today's electronic diesel engines. This course covers Cat, Cummins, Detroit, John Deere and others. This includes adjustment, testing, installation and electronic troubleshooting.
Prerequisite(s): DSET1106

DSET2220 Internship 3 0/0/3
This course is designed by the student and advisor in cooperation with industry to provide a job site training experience. The student will prepare an internship training plan reflecting skills to be developed on the internship site.
Prerequisite(s): Instructor approval, TRNS1102, TRNS1106, TRNS1110 and 15 DSET credits

DSET2230 Adv Engines and Fuel Systems I 3 1/2/0
This course is designed to give the student an understanding of the theory, operation, troubleshooting and repair of diesel engine intake, exhaust and fuel systems including but not limited to Caterpillar, Cummins and Detroit Diesel engines.
Prerequisite(s): DSET1132, DSET1134

DSET2232 Adv Engines and Fuel Systems II 3 1/2/0
This course includes repair and overhaul procedures of the internal engine components, including but not limited to, Caterpillar, Cummins and Detroit Diesel engines.
Prerequisite(s): DSET2230

DSET2238 Transmissions and Drive Systems 4 1/3/0
This course covers procedures to test, troubleshoot and rebuild power shift and other specialized transmissions used on agricultural, industrial and diesel trucks. This course also includes final drives and related components including removal, repair, installation and adjustment of major units and components.
Prerequisite(s): DSET1110

DSET2240 SOE II 3 0/0/3
Students will apply skill sets previously learned related to truck and/or other diesel-powered equipment and may be introduced to curriculum skill sets to be delivered in future semesters. Skill sets will be identified in a training plan developed by industry and instructor.
Prerequisite(s): Instructor approval

DTRK1140 SOE I 7 0/0/7
Students will apply skill sets previously learned related to medium and heavy duty trucks and may be introduced to curriculum skill sets to be delivered in future semesters. Skill sets will be identified in a training plan developed by industry and instructor.
Prerequisite(s): Instructor and sponsor approval

DTRK2214 Suspension and Alignment 3 1/2/0
This course will cover the procedures used in rebuilding, inspection and alignment of steering systems, leaf spring, equalizing beam and air spring suspensions used on modern medium and heavy duty trucks.
Prerequisite(s): TRNS1102

DTRK2230 Advanced Engines I 3 1/2/0
This course is designed to give the student an understanding of the theory, operation, troubleshooting and repair of modern medium and heavy duty truck diesel engines. Areas of study include intake and exhaust systems, emission control devices and fuel systems on but not limited to the following manufacturers: Caterpillar, Cummins, Detroit, Navistar, Mack and Volvo truck diesel engines.
Prerequisite(s): DSET1132, DSET1134

DTRK2232 Advanced Engines II 3 1/2/0
This course is designed to give the student an understanding of the theory, operation, troubleshooting and repair of modern medium and heavy duty truck diesel engines. Areas of study include the operation, inspection, disassembly and assembly of internal engine components on but not limited to the following manufactures: Caterpillar, Cummins, Detroit, Navistar, Mack and Volvo truck diesel engines.
Prerequisite(s): DTRK2230

DTRK2238 Transmissions and Drive Systems 4 1/3/0
This course is designed to give the student an understanding of the theory, operation, troubleshooting and repair of modern medium and heavy duty truck transmission, differential and driveline components. Areas of study include the operation, inspection, disassembly and assembly of various manufactures including but not limited to Allison, Eaton, Meritor, Rockwell and Mack.
Prerequisite(s): DSET1110

DTRK2240 SOE II 4 0/0/4
Students will apply skill sets previously learned related to medium and heavy duty trucks at a sponsoring dealer or fleet shop. Skill sets will be identified in a training plan developed by industry and instructor.
Prerequisite(s): Instructor and sponsor approval

DVCM0006 Comprehension Building 3 3/0/0
This course is designed to help students develop stronger reading comprehension and strengthen their technical comprehension and vocabulary skills in hopes of greater program success.
Prerequisite(s): Minimum scale score on the reading portion of the entrance exam

DVMS0057 Practical Math Applications 3 2/1/0
This course covers practical applications of mathematics principles as they relate to a variety of occupational areas. The course sets the stage for the relevance of mathematics in the world of work. Topics include problem-solving strategies, systems of measurement, accuracy, precision, graphing strategies, introductory probability and statistics, vector applications, basic trigonometry, geometry and formula manipulation.
Prerequisite(s): MATH0052, or satisfactory score on the math placement test

DVMS0096 Pre-College Chemistry 3 3/0/0
This course is designed to assist the student in developing a basic understanding of chemistry.
Prerequisite(s): None

ECON1150 Essentials of Economics 3 3/0/0
Meets MNTC Goal Areas 2 and 5. This course is an introductory study of economics and exposes the student to a variety of economic concepts. In order to enjoy a successful career, people need to understand how economics impacts the environment in which they live and work. This course helps satisfy those needs by exploring the principles of microeconomics, macroeconomics and international economics. At the microeconomic level, students will learn how the choices they make affect particular markets. They will examine resource allocation and pricing structure through analyzing demand and supply applications. Students will survey the competitive environment by exploring the market structures of perfect competition, monopolistic competition, monopoly and oligopoly. At the macroeconomic level, students will learn about the business cycle by analyzing the GDP, the inflation rate, the unemployment rate, deficit spending, the national debt and other economic indicators. They will also investigate the debate over activism and non-activism in monetary and fiscal policies. Finally, the student will examine international issues including tariffs/quotas, foreign exchange, the concept of comparative advantage and trends in globalization. This course is not intended for business or economics majors.
Prerequisite(s): None

ECON2210 Macroeconomics 3 3/0/0
Meets MNTC Goal Area 5. This course is divided into two main sections. Macroeconomics basics will provide the student with a means to study economic principles as they relate to determinants of national income, national income accounting, business cycles, unemployment, inflation and aggregate expenditures. These topics provide a foundation for expanded learning later in the course. Macroeconomic policy uses the knowledge gained from the earlier units and use it to gain further understanding in the areas of fiscal policy, financial markets, money and banking, monetary policy, international policy and the varying viewpoints that have evolved throughout history including the Keynesian and Monetarist schools of thought, among others.
Prerequisite(s): None

ECON2222 Microeconomics 3 3/0/0
Meets MNTC Goal Areas 5 and 9.The second semester of the economic sequence stresses microeconomics and the concepts of scarcity, production possibilities, supply and demand curves, elastic and inelastic goods and services, competition, monopolies and oligopolies and poverty and income distribution in the United States.
Prerequisite(s): ECON 2210 is recommended

ED2205 Introduction to Education and Technology 2 2/0/0
An introduction to the career of teaching along with the development of technology skills. Specific variables related to teaching as a profession are explored including professional roles and responsibilities, students, curriculum and the structure of schools. This course is to be taken concurrently with ED 2206.
Prerequisite(s): None

ED2206 Early Field Experience 1 0/0/1
This course is an early educational field experience. Students will be placed on a K-12 educational site and supervised by an experienced instructor. The student's primary role is as an observer of the classroom, but students may be asked to provide assistance in the classroom setting under the instructor's supervision. This course is to be taken concurrently with ED 2205.
Prerequisite(s): None

ED2294 Educational Psychology 3 3/0/0
This course is intended to provide an overview of the theories and principles from psychology that are applicable to the teaching profession. Specifically, the course addresses motivation, learning, development, instruction, assessment and classroom management. Educational Psychology is designed to be a foundation for future methods and issues courses in education.
Prerequisite(s): None

EDUC1001 College Success Skills 2-4
This course is designed to help students develop the basic skills necessary for academic success in college. Topics to be discussed may include (but are not limited to) time management, study skills, note- and test-taking skills, motivation and community and campus resources. Emphasis is placed on the application of these skills in other classes.
Prerequisite(s): None

EDUC1112 Job Search Skills 1 1/0/0
This course is designed to develop the successful job search, application, resume writing, interviewing and job maintenance skills needed to conduct an effective job search.
Prerequisite(s): None

EDUC1113 Career Life Planning 2 2/0/0
This course is designed to assist students in developing career exploration skills and strategies through self-exploration, cultural perceptions and career and major identification. Students will identify potential major/career possibilities.
Prerequisite(s): None

Course #	CourseTitle	CR	Lec/Lab/OJT

EDUC1115 Student Senate Leadership 1 1/0/0
Participation in Student Senate for credit.
Prerequisite(s): None

ELEC1150 Introduction to Electronics 4 3/1/0
This course is an introductory lecture/lab course for non-electronics technology majors. Topics include electrical circuits, analog electronic circuits, digital electronic circuits and electronic fabrication.
Prerequisite(s): None

ELEC2254 Instrumentation and Control Systems 5 3/2/0
This lab/lecture course covers the concepts of process control. Concepts include the terminology and functions of the devices used in control systems. Lab time is spent operating the equipment used in control loops.
Prerequisite(s): None

ELEC2255 Process Measurement and Control Valves 4 2/2/0
This lab and lecture course deals with the operation and function of devices used to measure the process output of a control loop. Control valves and actuators are also included. Lab time is spent on experimentation and calibration of the devices
Prerequisite(s): None

ELL0050 ELL Foundations 4 3/1/0
Grammar-based ELL Foundations is a course designed to prepare learners whose native language is not English to succeed in college-level fundamental courses. The course focuses on developing fluency in all English skill areas: speaking, listening, reading and writing. Content is chosen especially to provide sound models for needed basic written forms.
Prerequisite(s): Placement by assessment (composite score of 50-69 on the L.O.E.P test)

ELL0060 ELL Reading 3 3/0/0
This reading course is for non-native learners of English. It will intensively teach the English phonics system, including syllabication and word stress. Students will learn the skills and vocabulary necessary to read college-level material.
Prerequisite(s): Placement by assessment (score of 50-79 on the Reading Comprehension portion of the L.O.E.P. test)

ELL0070 ELL Academic Proficiency Skills 3 3/0/0
ELL College Success Skills is a course designed for students whose native language is not English. The course focuses on skills and knowledge needed to succeed in college-level courses in the United States.
Prerequisite(s): None

ELL1120 ELL Writing 4 4/0/0
This course is designed to help non-native English speakers who need to improve their writing skills, so they are ready and able to succeed in college-level fundamental writing courses.
Prerequisite(s): ELL0050 or obtain a composite score of 70 to 99 on the Accuplacer Levels of English Proficiency (L.O.E.P.) test

ELL1150 Intermediate Listening Comprehension 2-3
This course is designed for ELL students for whom English is not their native language. It continues the development of listening and speaking skills necessary for participating in college-level classroom discussions, incorporates oral presentation and fosters critical listening skills needed for taking notes and understanding lectures.
Prerequisite(s): An entering student should be able to read, comprehend and speak English at the "low intermediate" to "high intermediate" level, with a corresponding composite score of 70 to 99 on the Accuplacer Levels of English Proficiency (L.O.E.P.) test

ELL1175 Intermediate Listening and Speaking 3 3/0/0
This course is designed for ELL students for whom English is not their native language. It continues the development of listening and speaking skills necessary for participating in college-level classroom discussion, incorporates oral presentation and fosters critical listening skills needed for taking notes and understanding lectures.
Prerequisite(s): An entering student should be able to read, comprehend and speak English at the "low intermediate" to "high intermediate" level with corresponding score between 60 and 90 on the ESL Accuplacer Listening Test and/or a composite ESL Accuplacer score between 60 and 90

ELTR1100 Survey of Electronics 2 1/1/0
This course covers an overview of the basic electronic theories and circuits including some digital and communication systems. The use of test equipment and the construction of electronic circuits is the main emphasis in this course.
Prerequisite(s): None

ELTR1102 Circuit Analysis I 4 2/2/0
This course covers the basic concepts involved in direct current and alternating current circuits including atomic theory, components and circuits.
Prerequisite(s): None

ELTR1105 Circuit Analysis II 4 2/2/0
This course covers series-parallel DC circuits and DC circuit theorems as well as complex reactive circuits using imaginary numbers, series and parallel resonance, filter circuits and characteristics of antennas and transmission lines. Lab procedures verify concepts, laws and relationships learned in theory. Measured data is recorded and interpreted and conclusions drawn.
Prerequisite(s): ELTR1102

Course #	CourseTitle	CR	Lec/Lab/OJT

ELTR1125 Digital 4 2/2/0
This course covers digital number systems, logic gates, combinational logic circuits, sequential logic circuits, digital arithmetic circuits, display circuits and various interface circuits. System-level and component-level troubleshooting are covered in addition to operating digital test equipment. Course also covers an introduction to PLCs and micro-controllers.
Prerequisite(s): None

ELTR1140 Car and Home A/V Technology 3 1/2/0
In this course the students will learn techniques used in home and car audio systems and have the opportunity to design, build and test these systems. The students will learn how to distribute video signals throughout the home and how to set up home theater equipment to optimize performance. Wireless communication techniques for the home will also be discussed.
Prerequisite(s): None

ELTR1152 Semiconductors I 4 2/2/0
This course covers semiconductor devices. Diode applications, transistor operation, biasing and specifications along with amplifier configurations and applications. Troubleshooting, repair and design modifications are emphasized.
Prerequisite(s): ELTR1102

ELTR1155 Semiconductors II 4 2/2/0
This course covers common-emitter, common-base, common-collector and multi-stage amplifiers along with operational amplifiers (Op-amps). Clippers, clampers, JFETs and MOSFETs are also covered. Troubleshooting and circuit analysis are emphasized during this course.
Prerequisite(s): ELTR1152

ELTR1160 Electronic Assembly Tech 2 0/2/0
This course covers the techniques and procedures necessary for assembly and installation of electronic cables, connectors, printed circuit board component extraction and soldering and the proper use of the chemicals used in electronic assembly procedures. Standard and specialized electronic hand tools and equipment will be used.
Prerequisite(s): None

ELTR1162 Surface Mount Technology 2 0/2/0
This course covers the techniques and procedures necessary for assembly and rework (installation and extraction) of surface-mount components (SMC) and will introduce the student to Surface Mount Technology (SMT), SMT manufacturing methods, printed wiring layout and quality assurance in SMT. Standard and specialized electronic hand tools will be used.
Prerequisite(s): None

ELTR1182 Communications I 4 2/2/0
This course covers the fundamentals of radio frequency oscillators, amplitude and frequency modulation/demodulation and AM broadcast and FM broadcast receiver circuitry. Course also covers 555 timers.
Prerequisite(s): None

ELTR1187 Security and Fire Alarm Systems 3 2/1/0
In this course the student will learn which switches and sensors are used in fire alarm and security systems for home and business. They will learn how to wire and install sensors. The student will identify the customer needs and select the necessary equipment that meets security and fire alarm testing regulations. They will learn and work with motion sensors, door and window contacts, glass break sensors, smoke and fire detectors, keypads, card entry and control panels. They will configure and program a master control panel for fire alarm and security systems. Students will test and troubleshoot and repair fire alarm and security systems to help people maintain a safe environment in their home and business.
Prerequisite(s): ELTR1102

ELTR2202 Semiconductors III 3 2/1/0
This course covers control devices such as UJTs, SCRs, Diacs, Triacs, solid-state relays and switching power supplies. It also covers DC and AC analysis of JFET, MOSFET and IGBT amplifiers.
Prerequisite(s): ELTR1154

ELTR2208 Microprocessors 3 2/1/0
This course is designed to teach students about the function and application of microprocessors. The block diagram, registers, memory locations, data and address buses, control lines and the theory needed to program and interface the microprocessor to external devices will be studied. The student will develop basic and assembly level instructions and program and interface the microprocessor to perform various input/output operations.
Prerequisite(s): ELTR1122, ELTR1123

ELTR2212 Microcomputer Sys Program 3 2/1/0
This course covers the basics of computer programming for the technician. Topics include program layout and documentation, if/then statements, looping and data structures.
Prerequisite(s): None

ELTR2221 Communications II 4 2/2/0
Prerequisite: ELTR1182. This course covers the fundamentals of two-way radios, antennas, transmission lines and power requirements needed for communication systems. Spectrum analyzers, service monitors and other test equipment will be utilized throughout the course to optimize system performance. GPS equipment and systems will also be covered.
Prerequisite(s): ELTR1182

ELTR2230 Troubleshooting 4 2/2/0
This course covers troubleshooting of electronic circuits and systems to component level. Emphasis is on doing practical hands-on lab applications.
Prerequisite(s): ELTR1152

ELTR2236 Multiple Access Systems 2 1/1/0
This course will introduce the fundamentals of time division and frequency division multiplexing. Beginning with sample-and-hold circuits, the course will finish with T1, T3 and ATandT's FDM hierarchy.
Prerequisite(s): None

ELTR2240 Electromagnetic System 3 2/1/0
This course will introduce the basic concepts of antennae, feedlines, wave propagation and fiber optics.
Prerequisite(s): None

ELTR2242 Video Systems 2 1/1/0
This course will introduce the basic principles of video standards, video transmission, lighting and camera techniques.
Prerequisite(s): None

ELTR2246 Audio Systems 2 1/1/0
This course covers the basic principles of audio and audio recording and mixing techniques.
Prerequisite(s): None

ELTR2256 Electronic Licensing 2 2/0/0
This course reviews the information required to pass a certification test.
Prerequisite(s): ELTR1160, ELTR1180

ELTR2266 Mechanics and Hydraulics 2 2/0/0
This course covers the operating principles of levers, gears, pulleys, inclined planes and hydraulic systems. Analysis of systems requires use of vector math.
Prerequisite(s): None

ELTR2268 Programmable Logic Controllers 3 2/1/0
This course covers Programmable Logic Controllers (PLCs) including their installation, programming and operation.
Prerequisite(s): ELTR1160, ELTR1180

ELTR2272 Adv Lab Project II 2 0/2/0
This course covers the design and construction of two circuits to perform specific tasks. Projects will be selected by the student. Criteria will be provided by the instructor. Since this is a two-credit course, goals will be repeated for each project.
Prerequisite(s): ELTR1160, ELTR1180

ELTR2280 Industrial Control Systems 3 2/1/0
This course is designed to introduce the student to industrial control systems, their classifications and interfacing devices such as operational amplifiers, comparators, digital to analog and analog to digital converters, timers, thyristors and the control of electric motors. Lab exercises will be performed to reinforce the classroom theory.
Prerequisite(s): ELTR1123

ELTR2281 Process Control and Instrumentation 3 2/1/0
This course is designed to introduce the student to the principles of process control techniques and instrumentation used in temperature, pressure, flow, level control and industrial detection sensor systems. Lab exercises will be performed to reinforce classroom theory.
Prerequisite(s): ELTR2280

ELTR2285 Intro to PLC 3 2/1/0
This course will introduce the student to the fundamentals of programmable logic controllers, programming and their widespread use in industrial and manufacturing.
Prerequisite(s): None

ELTR2286 Advanced PLC Interfacing 3 1/2/0
This course is intended to be a capstone course for students of industrial electronic technology. It will cover advanced PLC programming, troubleshooting and interfacing. The student will design, construct and demonstrate an electronic circuit as a final project (approved by instructor) that is controlled by a PLC or PIC microcontroller.
Prerequisite(s): ELTR2285

ELTR2288 Electronic Technology Internship 2 0/0/2
This course provides the student with the opportunity to integrate the knowledge and concepts learned in all previous courses in an actual occupational setting.
Prerequisite(s): ELTR1160, ELTR1180

ELWT1102 Line Worker Theory I 4 2/2/0
This course provides the student with basic electrical theory involved in the production and use of electrical energy. In addition, the student practices basic direct current circuitry calculations and rigging skills including basic knots and splices pertaining to the electrical industry.
Prerequisite(s): None

ELWT1104 Electrical Structure Installation 5 2/3/0
This course provides the student with introductory knowledge and skills necessary to properly install electrical structures with hand tools and with mechanized structure installation machinery.
Pre/Corequisite(s): ELWT1102

ELWT1106 Climbing Electrical Structure 4 0/4/0
This course provides the student with the knowledge and skills to safely climb and frame various electrical structures to heights of 50 feet. Topics include free-hand and safety strap climbing and installation and removal of pole line hardware.
Pre/Corequisite(s): ELWT1104

ELWT1108 Const of Overhead Structures 3 0/3/0
This course provides the student with the technical understanding and skills necessary to construct overhead high voltage structures. Topics include interpretation of industry specification manuals, identification of overhead hardware, construction techniques and tool use.
Pre/Corequisite(s): ELWT1106

ELWT1110 Line Worker Theory II 4 2/2/0
This course provides the study of the principles of alternating current high voltage distribution circuitry. Included in this course are mathematical computation of AC power, conductor application including practice at armor rodding, hand and pre-formed ties, overvoltage and overcurrent installations and street lighting circuits.
Pre/Corequisite(s): ELWT1102

ELWT1112 Transformers 2 0/2/0
This course provides the student with the knowledge and skills necessary for mounting and connecting transformers to primary and secondary systems. The course will also cover paralleling of closed and open banks.
Pre/Corequisite(s): ELWT1110

ELWT1114 Line Construction Reports 2 2/0/0
This course provides the student with an understanding of the design of line work construction drawings and equipment installation orders.
Prerequisite(s): ELWT1108, ELWT1110

ELWT1116 Pole Top/Bucket Rescue 1 0/1/0
This course provides the student with an understanding of procedures necessary to complete a rescue of a line worker disabled while on a pole or in an aerial device.
Prerequisite(s): ELWT1106

ELWT1118 Field Construction I 3 0/3/0
This course covers the installation of single-phase high voltage systems under actual field conditions. The course contains two main parts. The course contains two main parts, the first of which is the overhead construction section. Structural assembly includes grounding requirements, guying, and conductor installation, which includes stringing and typing, single-phase transformers, capacitors and regulator installation. The second main area is underground installation covers trencher operation, primary and secondary cable termination, services, pad mount transformers, sectionalizing cabinets and street lighting.
Prerequisite(s): ELWT1106, ELWT1114

ELWT1120 Field Construction II 3 0/3/0
This course covers the installation of multi-phase high voltage systems under actual field conditions. The overhead section will cover structure assembly including grounding, structural guying, conductor installation which includes stringing and tying, multi-phase transformer installation, capacitor installation, regulator installation and the use of protective cover-up material and hot sticks. The underground section will cover multiple cable installation, primary and secondary cable terminations, three-phase pad mount transformer installation and multi-phase sectionalizing cabinet installation.
Prerequisite(s): ELWT1106, ELWT1114

ELWT1122 Field Construction III 3 0/3/0
This course gives the student a basic understanding of overhead transmission structure construction and installation requirements for 69KV systems. Students will also participate in two industry hot line schools, one sponsored by the Minnesota Municipal Utilities Association and the other by the Minnesota Rural Electric Cooperatives.
Prerequisite(s): ELWT1118

ELWT1130 Electrical Line Worker Internship 2 0/0/2
This course will concentrate on the student receiving apprentice life work skills under the supervision of an appropriate industry representative.
Prerequisite(s): Instructor approval

EMTB1100 Emergency Med Tech Basic 6 5/1/0
The Emergency Medical Technician-Basic course follows the current National Standard Curriculum. This course will include all skills and classroom information necessary to provide emergency care at the Basic Life Support level. Modules presented include: (1) Preparation of the EMT-B; (2) Airway; (3) Patient Assessment (medical and trauma); (4) Medical/Behavioral Emergencies and OBGYN; (5) Trauma; (6) Infants and Children; (7) Ambulance Operations; and (8) Interventions (medications and semi-automatic defibrillation). Upon successful completion of the EMT-B Course of instruction, the student will be eligible to take the State/National Written and Practical Examinations.
Prerequisite(s): Healthcare Provider CPR Completion

ENGL0040 Reading Strategies 3 3/0/0
This developmental reading course is designed to provide students with a foundation in more advanced reading and study skills. Students will develop increased proficiency in reading and understanding college-level texts. Students will learn to recognize the main ideas in articles and chapters, summarize content and read actively and critically. In addition, the course will concentrate on reading-related study skills such as effective note-taking from texts, proper annotation of texts and reading skills for effective test taking. An emphasis on building college-level vocabulary will also be stressed.
Prerequisite(s): None

Course #	CourseTitle	CR	Lec/Lab/OJT

ENGL0050 Writing Fundamentals 3 3/0/0
This basic course in mechanics, usage, sentence patterns, paragraphing and essay development is designed to provide a foundation for essential writing skills. Students will begin the process of close reading in preparation for college English courses.
Prerequisite(s): Placement by assessment

ENGL0075 Basic Writing 2 2/0/0
This writing course is meant for those students whose assessment scores on the CAPP assessment writing test indicate a brief review of the basics of writing is in order. This course focuses on the process involved in paragraph and essay writing: Prewriting, drafting, revising and editing.
Prerequisite(s): Placement by assessment

ENGL0095 Academic Literacy 5 5/0/0
This hybrid course combines reading and writing at a college preparatory level. Students will read one or two book-length works of fiction or nonfiction, along with essays, articles and other texts. In actively reading the material, students will annotate, summarize, interpret and analyze, as they increase their vocabulary and identify organizational patterns. In addition, students will respond to these readings through class discussion, group work and writing. Students will participate in all stages of the writing process as they write journals, paragraphs, reports and essays. Emphasis will be placed on learning through revision; thus, conferencing is an important component of the course. Pass/Fail
Prerequisite(s): Placement by assessment

ENGL1010 Textbook Reading 3 3/0/0
This course is designed to strengthen reading skills by building vocabulary relevant to content courses, to teach structural analysis of new words, to guide students through reading sub-skills and to teach metacomprehension.
Prerequisite(s): Placement by assessment

ENGL1061 Business English 3 3/0/0
This is a basic course in business communications designed to assist the student in the following areas: Review of grammar and usage, spelling, punctuation and the planning, drafting and editing of memorandums, letters and reports.
Prerequisite(s): Assessment placement in ENGL1101

ENGL1101 College Writing I 3 3/0/0
Meets MNTC Goal Area 1. College Writing is an introductory writing course for the Associate in Arts degree, designed to prepare students for later college and career writing. The course focuses on developing fluency through a process approach, with particular emphasis on rewriting and revision. Students will consider purpose and audience, read and discuss writing and further develop their own writing processes through successive revisions to produce polished drafts. Course work will include an introduction to argumentative writing, writing from sources and a short research project.
Prerequisite(s): Placement by assessment

ENGL1102 College Writing II 3 3/0/0
Meets MNTC Goal Area 1. College Writing II is the second required English course for an Associate of Arts Degree. This course provides students with additional opportunities to develop fluency through a process approach by continuing work with rewriting and revision. Students will read critically from a variety of genres as they continue to give attention to organization, syntax, usage, point-of-view and voice in their essays. Coursework will include argumentative writing and writing from sources.
Prerequisite(s): ENGL1101

ENGL1201 Technical Writing 3 3/0/0
Meets MNTC Goal Area 2. English 1201 is an elective course for those students desiring instruction in report and formal research writing. Students will engage in refining critical thinking skills about the informative, persuasive and ethical dimensions of their communications as they analyze and evaluate their own ideas as well as the ideas of others. The formally documentated multi-source paper(s) will represent the culmination of the student's ability to collect, analyze and synthesize information.
Prerequisite(s): ENGL1101

ENGL1220 Professional and Technical Writing 3 3/0/0
Meets MNTC Goal Areas 1 and 2. This course provides instruction in writing and designing professional and technical documents, including correspondence, descriptions, instructions, reports and proposals, along with promotional material. Analysis, critical thinking and synthesis of sources will be covered, along with the development of oral presentation skills. Course work also includes a formally-documented, multi-source professional paper.
Prerequisite(s): ENGL1101

ENGL2200 Introduction to Creative Writing 3 3/0/0
Meets MNTC Goal Area 6F. The creative writing course focuses on the writing of short fiction, poetry and plays. It is a course designed to offer students practice in the composition of these three modes, with room for exploration of each genre's sub-categories. Emphasis will be on writing original work and on learning the skills needed to write successful creative works within each genre. This course will emphasize helping students learn to develop their creative voice and incorporate study of published works to aid students in this goal. This course counts as a fine arts course; it places emphasis on the creation of fine arts as opposed to the formal, critical analysis of them. Course delivery will include a traditional class format as well as workshop settings, where students' work will be read, analyzed and critiqued by others in the class. The course may include the following: presenting and submitting manuscripts, analyzing the motivation for writers, editing and criticism, techniques for reading work aloud and analyzing masterpiece models. Evaluation of course competencies may be based on writing journals, portfolios, presentations, large and small group discussions, collaborative tasks, manuscripts (completed or works in progress), and/or public reading of student works.
Prerequisite(s): ENGL1101

ENGL2221 Creative Writing: Poetry 3 3/0/0
Meets MNTC Goal Area 6F. This creative writing course focuses on the writing of poetry. It is a workshop designed to offer students practice in the composition of poetry and poetic modes of writing. Emphasis will be on writing original work and on learning the skills needed to write successful poetry. The course will emphasize helping students learn to develop their creative voice. This course counts as a fine arts course; it places emphasis on the creation of fine arts as opposed to the formal, critical analysis of them.
Prerequisite(s): ENGL1101

ENGL2222 Creative Writing: Fiction 3 3/0/0
Meets MNTC Goal Area 6F. This creative writing course focuses on the writing of short fiction; it may also include creative essay writing. It is a workshop designed to offer students practice in the composition of fiction and other narrative modes of writing. Emphasis will be on writing original work and on learning skills needed to write successful narratives. The course will emphasize helping students learn to develop their creative voice. This course counts as a fine arts course; it places emphasis on the creation of fine arts as opposed to the formal, critical analysis of them.
Prerequisite(s): ENGL1101

ENGL2223 Creative Writing: Personal Narrative 3 3/0/0
Meets MNTC Goal Area 6F. This creative writing course focuses on the writing of memoir. It is a workshop designed to offer students practice in the composition of memoir, from autobiographical vignettes to fully developed personal narratives. Emphasis will be on writing original work as well as reading and modeling exemplary memoir writing. This course counts as a fine arts course as it emphasizes the creation of fine arts as opposed to the formal critical analysis of them.
Prerequisite(s): ENGL1101

ENGL2228 A Well Examined Life: Reading and Writing Memoir 3 3/0/0
Meets MNTC Goal Areas 6F and 7. This course focuses on the writing of personal memoir as well as an in-depth study of the literary genre of memoir. It may also include creative essay writing. It is a workshop designed to offer students practice in the composition of memoir and other narrative modes of writing, as well as a study of the memoir as literature. This course places emphasis on the creation of fine arts as well as the formal, critical analysis of them.
Prerequisite(s): ENGL1101

ENGL2230 Environmental Literature 3 3/0/0
Meets MNTC Goal Areas 2, 6 and 10. This course will focus on selected readings that will enable students to define "environment." Readings will include personal, expository and argumentative essays and articles; technical reports; legislative and judicial actions; and fiction and poetry which reflect the increasingly global focus of environmental concerns. Writing activities will allow students to explore informal writing, personal essays, argumentative papers and research projects. Students will gain experience in reading critically and in writing logical, sound papers that deal with environmental issues.
Prerequisite(s): ENGL1101

ENGL2231 Intro to Literature: Poetry 3 3/0/0
Meets MNTC Goal Areas 2, 6 and 7. This literature course will increase students' understanding of individual and group differences through a close study of American poetry. Issues of race, gender, class, tradition and value will be the focus of the course as illuminated by the literature. The course will also cover the basic elements of poetry.
Prerequisite(s): Completion of or concurrent enrollment in ENGL1101

ENGL2234 Intro to Literature: Short Stories 3 3/0/0
Meets MNTC Goal Areas 2, 6 and 7. This literature course will increase students' understanding of individual and group differences through a close study of American short stories. Issues of race, gender, class, tradition and value will be the focus of the course as illuminated by the literature. The course will also cover the basic elements of short stories.
Prerequisite(s): Completion of or concurrent enrollment in ENGL1101

ENGL2235 Intro to Literature: Drama 3 3/0/0
Meets MNTC Goal Areas 2, 6 and 8. This literature course will introduce students to the growing interdependence of the people of the world through a close study of drama. Studying drama written by various writers around the world will allow students to develop an understanding of and an appreciation for the human condition and culture. The course will also cover the basic elements and concepts of drama.
Prerequisite(s): Completion of or concurrent enrollment in ENGL1101

ENGL2236 Intro to Literature: Novel 3 3/0/0
Meets MNTC Goal Areas 2, 6 and 7. This literature course will involve students in a close reading of selected novels that focus on individual and group differences in both the U.S. and abroad. Attention will be paid to the traditions and values of the writers and as portrayed in the literature. Basic concepts and elements of the novel will also be studied.
Prerequisite(s): Completion of or concurrent enrollment in ENGL1101

ENGL2237 Intro to Literature: Short Prose 3 3/0/0
Meets MNTC Goal Areas 2, 6 and 9. This literature course will focus on the ethical dimensions of political, social and personal life as found in short prose. The basic elements and concepts of short prose will be studied.
Prerequisite(s): Completion of or concurrent enrollment in ENGL1101

ENGL2239 Nature Writers 3 3/0/0
Meets MNTC Goal Areas 2, 6 and 10. This course will focus on books and texts written by great nature writers. While special emphasis will be placed on those works that stress conservation and ecology, others will enable students to see the human struggle with the environment as protagonist. Material may also include travel writing, as well as the more recent directions toward urban nature and nontraditional/multicultural perspectives.

Texts may include nonfiction, novels, poetry and plays. Students will gain experience in reading critically and writing logical, sound papers that deal with environmental issues and text analysis.
Prerequisite(s): ENGL1101

ENGL2302 American Ethnic Literature 3 3/0/0
Meets MNTC Goal Areas 6 and 7. This multi-genre literature course is a study of significant writers and selected works presenting diverse groups based on race, ethnicity, gender, class, culture, etc. Through discussions of literature, the origins, contributions and the changing dynamics of specific groups in the United States will be studied.
Prerequisite(s): ENGL1101

ENGL2304 Introduction to Literature, Native American Focus 3 3/0/0
Meets MNTC Goal Areas 2 and 6. This introductory literature course introduces students to the study of poetry, drama, memoir and short fiction through the study of Native North American writings. Students will employ critical reading/thinking skills and analytical and creative writing skills in order to more fully understand the literature.
Prerequisite(s): Completion of or concurrent enrollment in ENGL1101

ENGL2310 Intro to Mythology 3 3/0/0
Meets MNTC Goal 6. This course surveys the role that mythology has played in revealing how society viewed the world of its day by reading and discussing a variety of short myths and at least one early novel. It will also survey the changing role of heroic figure as presented in myth, past to present.
Prerequisite(s): ENGL1101

ENGL2314 Intro to Shakespeare 3 3/0/0
Meets MNTC Goal Area 6. This course introduces students to the works of William Shakespeare. Students will become familiar with Shakespeare's works through a combination of reading at least four plays and a variety of poems; the course may include viewing adaptations of Shakespeare's plays to the screen. The course will also cover the society and time period (Renaissance) in which Shakespeare wrote and how they have contributed to his works. Emphasis in the course is placed on close reading and critical analysis of Shakespeare's plays.
Prerequisite(s): ENGL1101

ENGL2320 Special Topics 3 3/0/0
Meets MNTC Goal Areas 2 and 6. This literature course is an in-depth study of a particular literary genre, theme, or topic. Examples include but are not limited to horror and supernatural fiction/utopian/dystopian literature and literature in translation. Course may be repeated for credit with a change in subtitle.
Prerequisite(s): ENGL1101

ENGL2321 Women in Literature 3 3/0/0
Meets MNTC Goal Areas 6 and 7. This multi-genre course is an examination of women's roles, choices and lives in many countries and in many times. The course gives attention to the diverse cultural forces that affect women's beliefs and attitudes and the circumstances in which the women live.
Prerequisite(s): ENGL1101

ENGL2322 Banned Literature 3 3/0/0
Meets MNTC Goal Areas 2, 6 and 7. This course is an in-depth study of literature that has been banned or challenged. The course focuses primarily on the study of literature, but part of the lectures, discussions and student responses will address the topic of censorship. Students will read from a variety of genres.
Prerequisite(s): ENGL1101

ENGL2323 Horror and Supernatural Fiction 3 3/0/0
Meets MNTC Goal Areas 2 and 6. This course is an in-depth study of literary texts that fall under the category of horror and/or supernatural fiction. While the focus is on this genre, the course may also address sub-categories of detective fiction, science fiction and fantasy.
Prerequisite(s): ENGL1101

ENGL2324 Travel Literature 3 3/0/0
Meets Goal Areas 2, 6 and 10. This course is an in-depth study of travel literature. This course will focus primarily on modern travel literature, but some readings of early explorers will establish context for the changes within the genre (e.g. from medieval pilgrimages and Victorians' Grand Tours to travelogues and road narratives). The course will also address various purposes for travel such as adventure, exploration and spirituality, as well as trends in modern travel writing such as blogs and eco-tourism.
Prerequisite(s): ENGL1101

ENGL2330 Individual Authors 3 3/0/0
Meets MNTC Goal Areas 2 and 6. This literature course is a study of one or two major influential authors. The authors focused on will vary and will be named as a subtitle to the course. Students will become familiar with the author(s), her/his background and the time and society in which s/he lives and how these factors have influenced the works the author(s) has produced. This course will include critical analysis and responses to the works studied. The course may be repeated for credit with a change in subtitle.
Prerequisite(s): ENGL1101

ENGL2331 American Literature I 3 3/0/0
Meets MNTC Goal Areas 6 and 7. This multi-genre course is designed to introduce students to the diversity of the human experience as reflected in American literature and the historical context that influenced its writers.
Prerequisite(s): ENGL1102

ENGL2332 American Literature II 3 3/0/0
Meets MNTC Goal Areas 6 and 7. This multi-genre course is designed to introduce students to the diversity of the human experience as reflected in American literature and the historical context that influenced its writers.
Prerequisite(s): ENGL1102

ENGL2361 British Literature I 3 3/0/0
Meets MNTC Goal Areas 6 and 8. This multi-genre course will introduce students to a broad spectrum of British literature which resulted from political, economic, religious, linguistic and cultural phenomena in Great Britain.
Prerequisite(s): ENGL1102

ENGL2362 British Literature II 3 3/0/0
Meets MNTC Goal Areas 6 and 8. This multi-genre course will introduce students to a broad spectrum of British literature which resulted from political, economic, religious, linguistic and cultural phenomena in Great Britain.
Prerequisite(s): ENGL1102

ENGL2372 Children's Literature 3 3/0/0
Meets MNTC Goal Areas 2, 6 and 7. This course introduces students to children's literature. Students will read and respond to diverse, traditional and contemporary texts. Emphasis will be placed on reading, analyzing, interpreting and evaluating children's literature from various contextual frameworks, such as the development of the genre, cognitive development, censorship and depictions of family, race and gender
Prerequisite(s): ENGL1101

ENGR1100 Project Management 1 1/0/0
This course provides an overview of the construction industry and introduces the student to the duties and responsibilities of the construction professional. Students will be exposed to the fundamentals of construction techniques and methods employed by professionals in the industry with an emphasis on career opportunities.
Prerequisite(s): None

ENGR1118 Engineering Applications 3 3/0/0
This course covers the application of the knowledge of geometry and trigonometry necessary in the construction and manufacturing industry, architecture, mechanical drafting, construction management and civil engineering.
Prerequisite(s): MATH0090 or satisfactory score on the math placement test

ENGR1126 Engineering Graphics 3 1/2/0
Introduces and develops basic skills in drawing, lettering, orthographic projection, sections and dimensioning. This course will also apply the basic fundamentals of pictorial drawing, including isometric, oblique, perspective, shade and shadow and freehand sketching.
Prerequisite(s): None

ENGR1132 Office Systems and Equip 2 1/1/0
This course covers the application of Windows software systems in coordination with AutoCAD software, as well as general office equipment setup and use.
Pre/Corequisite(s): CADD1102

ENGR2210 Engineering Mechanics I 3 3/0/0
Course provides an introduction to the principles of mechanics, including equilibrium of particles and rigid bodies; distributed forces, centroids and centers of gravity; moments of inertia of areas; analysis of simple structures and machines; and various types of friction.
Prerequisite(s): MATH1134

ENGR2220 Engineering Mechanics II 3 3/0/0
To introduce the theory and application of dynamics of particles and rigid bodies. Topics include the kinematics and kinetics of particles and rigid bodies (translational and rotational), principles of work and energy and principles of impulse and momentum.
Prerequisite(s): ENGR2210, MATH1135

ENGR2230 Mechanics of Materials 3 3/0/0
To provide an introduction to the study of stress, strain, deformation and failure of elastic bodies subjected to external forces. Topics include the relationships between the applied loads and the resulting stresses and deformations in an elastic body, stress-strain relations and the design of structural members subjected to known loads.
Prerequisite(s): ENGR2210

ENST2001 Fundamentals of Utilities 4 4/0/0
General overview of electric, gas and telecommunications industry. The course will cover fossil fuel and renewable energy sources for electric power generation, its history and projected needs for the future. The course also covers the natural gas utility from the ground to the consumers, its history and projected needs for the future. Also covered is the telecommunications industry and how the land phone and cell phone systems operate.
Prerequisite(s): None

ENST2002 Energy Safety Principles 1 1/0/0
This course is designed to explore the principles and practices of health and safety in an energy services related construction environment. Topics covered in this course include personal protective equipment, safe work practices, hazardous materials, employee protection, regulations of the Environmental Protection Agency (EPA), Occupational Safety and Health Act (OSHA) and pertinent safety codes/standards.
Prerequisite(s): None

Course #	CourseTitle	CR	Lec/Lab/OJT

ENST2222 Blueprint Reading for Energy Industry 2 2/0/0
This course will introduce the student to read and interpret system, strand maps for gas, electric and communication industry. The student will also be introduced to reading building blueprints and staking and pole framing sheets. This course does not meet any of the required goal areas for the MNTC.
Prerequisite(s): None

ENST2223 GPS Mapping 2 1/1/0
This course covers basic information to help the student understand GPS uses in the utility industry, data collection options, processing the collected data and field procedures used to plan a utility distribution route.
Prerequisite(s): ENST2222

ENTR1100 Intro to Entrepreneurship 3 3/0/0
This course is designed to introduce students to the entrepreneurial process from conception to birth of a new venture. Students will examine elements in the entrepreneurial process — personal, sociological and environmental-that give birth to a new enterprise. Critical factors for starting a new enterprise such as alternative career prospects, family, friends, role models, the state of the economy and the availability of resources will be explored. Students will be introduced to practical tools they can use to further their careers in business, both in entrepreneurship and in more traditional company environments. This course simulates the experiences that entrepreneurs undergo in conceiving, launching and operating new businesses. The course enables students to evaluate an entrepreneurial career for themselves. In doing so, it provides want-to-be entrepreneurs with a framework for selecting, funding and starting their own new ventures.
Prerequisite(s): None

ENTR1102 Start-Up Survival and Success 1 1/0/0
Through this introductory course, students will be able to recognize key entrepreneurial qualities and identify new business opportunities.
Prerequisite(s): None

ENTR1104 Preparing Your Business Plan 1 1/0/0
Through this introductory course, students will be able to understand the process to be used in preparing a business plan.
Prerequisite(s): None

ENTR1106 Sources of Funding, Alternatives to Starting from Scratch 1 1/0/0
Through this introductory course, students will be able to evaluate different sources of financing, decide whether to start or purchase an existing business, learn about franchise agreements and understand the basics of managing your own business.
Prerequisite(s): None

ENTR1112 Understanding Your Accounting Systems 1 1/0/0
The course includes discussion of the various aspects of the accounting systems available for beginning entrepreneurs. Included will be computer systems, software, inventory systems, receivable and payable management and internal control procedures.
Prerequisite(s): None

ENTR1114 Understanding Your Financial Statements 1 1/0/0
Various components of balance sheets, income statements and cash flow standards will be discussed along with key ratios and how to analyze the results.
Prerequisite(s): None

ENTR1116 Understanding Different Tax Issues 1 1/0/0
Various legal and tax topics will be discussed, including income taxes for proprietorship, partnerships and corporations; payroll taxes for employees; sales taxes and other tax issues.
Prerequisite(s): None

ENTR1400 Opportunity Analysis 3 2/1/0
In this course, students will assess their individual or organization's skills, talents, education and work experiences for potential business ideas. They will also examine their external environment to identify trends and needs in the marketplace for potential business opportunities. Students will then screen potential business ideas by assessing their personal or organization's appropriateness based on their strengths and skills and personal, professional and financial goals. An initial market feasibility analysis will be conducted and students will test their concept through basic market research.
Prerequisite(s): None

ENTR1800 Business Internship 1-3 0/0/3
This course is designed to provide the student with a purposeful occupational experience in a business environment related to their program of study. A training plan is created for each student in conjunction with the training site to provide experience related to the skills and knowledge acquired in the program. Each internship is an individualized experience. Therefore, this course offers a flexible, variable credit experience. The student may choose from 1, 2 or 3 credits, depending on the number of hours pre-arranged with their internship site supervisor. Each credit will require 45 hours of on-the-job learning.
Prerequisite(s): Advisor approval

ENTR2200 Entrepreneurial Field Studies 3 0/3/0
This course exposes students to business owners and practicing entrepreneurs currently managing on-going entrepreneurial enterprises. The purpose of the course is to develop mentor relationships with successful practicing business owners and to gain first-hand experience about the knowledge, skills and abilities necessary to be a successful entrepreneur. Students will submit reports throughout the semester addressing questions that integrate entrepreneurship and other business coursework with their work experience.
Prerequisite(s): None

ENTR2220 Business Ethics/Professionalism 3 3/0/0
This course examines issues related to ethics in business and their impact upon society, the economy and the environment. Students will increase their awareness in making decisions based upon ethical judgments. Students will examine the roles, responsibilities and conflicts of business management in the context of organizational ethics. Students will analyze case studies of workplace behavior and define appropriate professional conduct in various workplace scenarios including dress, language and other emerging trends.
Prerequisite(s): None

EQSC1001 Introduction to Equine Science 1 1/0/0
This course introduces the student to the basics of equine breeds, types of horses (characteristics and uses) and husbandry practices. It will also cover aspects of the equine industry such as career paths and necessary job skills.
Prerequisite(s): None

EQSC1050 Equine Anatomy 3 2/1/0
This course provides an overview of equine anatomy, physiology and disease management. This course allows students to learn basic anatomy and physiology using a systems approach specific to the equine. The student will apply this knowledge to the subjects relevant to equine health management such as equine diseases, disease prevention (vaccination and husbandry), lameness, performance and parasite control.
Prerequisite(s): None

EQSC1060 Equine Repro and Nutrition 3 3/0/0
This course introduces the student to the management of the breeding stallion, reproducing mare and newborn foal. It will discuss the anatomy and endocrinology of the reproductive system, the mare estrus cycle, spermatogenesis and cooled and frozen semen insemination techniques. Fundamentals of equine nutrition, feed selection, digestive anatomy and ration evaluation will also be covered.
Prerequisite(s): None

EQSC1130 Stable Operations I 1 1/0/0
Students will have hands-on experience working in an operational equine (training, boarding, riding, lesson) facility. Students will help with day-to-day care and will share the responsibilities for the horse's health and well being, including feeding, parasite control and medical attention.
Prerequisite(s): None

EQSC1131 Stable Operations II 2 1/1/0
Students will have hands-on experience working in an operational equine (training, boarding, riding, lesson) facility. Students will help with day-to-day care and will share the responsibilities for the horse's health and well being including feeding, parasite control and medical attention. This advanced section may also include first aid, vaccinations and foaling procedures. The program capstone project (including a business plan) and the program portfolio project will be completed in this course.
Prerequisite(s): EQSC1130 with a grade of a C or better

EQSC1140 Western Horsemanship 3 1/2/0
The student will learn safety, grooming, handling, tack identification and its uses, tacking, showing techniques, correct body position and riding in western disciplines. A large emphasis will be on horse and rider body communication through balance and coordination.
Prerequisite(s): None

EQSC1150 Fundamentals of Riding Instruction 2 1/1/0
The student will be provided training in how to give clear, practical and comprehensible instruction. Varied instruction styles will be covered, as well as developing lesson plans, executing lesson plans, problem solving and instruction management.
Prerequisite(s): None

EQSC1160 English Equitation 3 1/2/0
The student will learn safety, grooming, handling, tack identification and its uses, tacking, showing techniques, correct body position and riding in hunt seat, dressage and jumping disciplines. A major emphasis will be on horse and rider body communication through balance and coordination.
Prerequisite(s): None

EQSC1170 Introduction to Horse Training 1 0/1/0
Students will learn through demonstration how to work with an untrained young horse or an older horse to correct problems and maintain the horse. Training theories, safety, grooming, handling, tacking, identifying tack and its uses, artificial and natural aids and their uses, grooming and showing techniques will also be included.
Prerequisite(s): None

EQSC2100 Analysis and Interpretation of Equine Information 1 1/0/0
In this course the student will learn and practice how to read and interpret written or online information found in horse magazines, advertisements or Web sites. Foundation equine science knowledge will be used to distinguish scientifically backed research based information from lay or advertising claims.
Prerequisite(s): None

EQSC2200 Recognition and Management of Equine Disorders 3 3/0/0
This course will cover the practical aspects of recognizing and managing equine infectious and metabolic disease, lameness and performance problems and breeding issues. Vaccination protocols and parasite prevention will be included. This course will build on the knowledge gained in EQSC 1050 and 1060 and be custom fitted to each student's specific discipline relevant to their internship site.
Prerequisite(s): EQSC1050, EQSC1060

EQSC2300 Applied Stable Operations 3 3/0/0
This course will build on the knowledge from EQSC 1130 and 1131. Caring for horses, their environment, nutrition (including feeds and feeding), behavior and disease management within a holistic stable/farm/ranch environment will be explored and analyzed. The course will be customized to be relevant to the student's internship experience and will include a capstone project consisting of an in-depth analysis and evaluation of the student's internship facility and business.
Prerequisite(s): EQSC1130, EQSC1131

EQSC2500 Equine Internship 15 0/0/15
This course will provide the student practical experience and on-the-job training relevant to the equine industry. The internships will take place at sites throughout the country or world. These sites are all working farms, ranches, clinics, breeding facilities, stables, etc. All disciplines (English, Western, ranch, breeding, veterinary, riding, training, showing, etc) are represented in order to meet a student's specific area of interest. Students will be required to meet written goals and objectives and undergo evaluations from their host supervisor. Student academic progress will also be monitored via M State's online learning platform (15credits x 45 semester hours = 675 hours.)
Prerequisite(s): EQSC1001, EQSC1050, EQSC1060, EQSC1130, EQSC1131, EQSC1140, EQSC1150, EQSC1160, EQSC1170

ESL1130 English as a Second Language 2 2/0/0
Content Based ESL is a course designed to prepare limited English speakers to succeed in college-level courses. The course focuses on development of fluency and literacy in English as it relates to the academic and career setting. This course is designed to parallel courses in other disciplines.
Prerequisite(s): Placement by assessment

ESTH1800 Infection Principles for Esthetics 1 1/0/0
In this course you will learn about various organisms, how they cause diseases and how their spread can be prevented. You will also learn about the effects of cosmetics and skin care products on the skin. You will explore the basics of electricity and how it works in relation to skin care machines.
Prerequisite(s): None

ESTH1802 Skin Sciences 2 1/1/0
In this course students will learn the function, layers and anatomy of the skin. Students will also learn how to conduct a complete consultation and analysis of the skin.
Prerequisite(s): None

ESTH1805 Facial Care Practices 3 1/2/0
In this course you will learn how to perform facial massage and facial treatments. You will also learn how to incorporate machines into your treatments. In addition you will learn about various methods of hair removal.
Prerequisite(s): None

ESTH1807 The Business of Skin Care 3 2/1/0
In this course you will learn the various types of ownership. You will also learn how to keep accurate business records and how to market for and retain clients.
Prerequisite(s): None

ESTH1808 Advanced Skin Treatments 3 1/2/0
In this course you will learn advanced skin care techniques including lymph drainagepeels, microdermabrasion and spa body treatments.
Prerequisite(s): None

ESTH1810 Micro Dermagraphics 4 2/2/0
In this course you will learn the art of applying permanent cosmetic make-up and corrective/camouflage applications. This course will include client consultation, safety and sanitation. Micro dermagraphics is an unregulated service and is exempt from regulation by the Board of Barbers and Cosmetologists.
Prerequisite(s): None

FASH1140 Textiles 3 2/1/0
Fabric information becomes a main concern when buying or selling fashion apparel and home and office furnishings. This course is designed to give the student knowledge of fiber characteristics, fabric construction and performance, fabric care and labeling.
Prerequisite(s): None

FASH1144 Fashion History and Trends 3 3/0/0
This course is designed to offer an introduction of fashion and includes the study of social, economic and psychological factors influencing the fashion industry. The definite patterns of past and present fashion are used to predict the direction of future trends.
Prerequisite(s): None

FASH1152 Professional Image Strategies 3 2/1/0
This course includes the fundamental guidelines for developing a total professional persona. Complementing one's personal characteristics, expressing one's personality and behaving in an appropriate manner is important to create the desired image of a well-dressed professional. This course includes guidelines for personal clothing selection as well as assisting others to make selections.
Prerequisite(s): None

FASH1158 Business Insights 1 0/1/0
Examination of the fashion industry from designers and manufacturers to the final finished product in the hands of the buying public is covered in this course. Students analyze the impact of current events, trendsetters, the economy, the media and technology on current fashions in the marketplace. This hands-on course includes a several-day field trip to Minneapolis.
Prerequisite(s): Open to Marketing careers majors

FASH2242 Fashion Accessories 3 3/0/0
This course provides product knowledge in various fashion accessory areas. Since apparel and accessories are worn together, their evolution and trends are directly related to each other. Principles of manufacturing, merchandising, selection and sales of accessories are explored.
Prerequisite(s): None

FASH2248 Buying 3 3/0/0
The essentials of effective retail fashion buying are covered in this course. The main areas include the retail buying environment, the planning and control functions and the buyer/market/vendor relationship.
Prerequisite(s): None

FASH2250 Visual Merchandising 3 2/1/0
This course covers the principles and elements of design and display. During this course, the students are required to build various displays which utilize the elements and principles of visual merchandising.
Prerequisite(s): None

FASH2258 Field Studies 2 0/2/0
Examination of the fashion industry from designers and manufacturers to the finished product will be covered in this course. Students will analyze the impact of current events, trend setters, the economy, the media and technology on current fashions in the market place. This hands-on course includes a several day field trip to New York or other major market areas.
Prerequisite(s): None

FIRE1100 Intro to Fire Service 2 2/0/0
This course covers the basic information that the student will need to understand the fire protection career field. It will provide an overview of the firefighter selection process and assist in preparing the student for the competitive selection process. It will also provide additional information on fire protection careers other than that of a firefighter. This course will cover the history of public fire protection; basic terminology; the chemistry, physics and behavior of fire; fire suppression; fire-based emergency medical services; hazardous materials response; fire prevention and physical fitness training requirements.
Prerequisite(s): None

FIRE1104 Job Skills I 1 0/0/1
This course is the first in a series of internships within the fire service. The student will be assigned to a fire department to reinforce the skills learned in the classroom. This course will include departmental rules and regulations, station and grounds maintenance, assignment and maintenance of personal protective equipment and the use and maintenance of fire service hand tools and equipment. In addition to reinforcing classroom instruction, this course will provide the student the opportunity to become involved in fire service emergency responses. The student's participation in emergency responses will be determined by the fire department officer in charge.
Prerequisite(s): None

FIRE1106 Firefighter I and II 3 3/0/0
This course covers the objectives of the Minnesota State Fire Chiefs Association (MSFCA) for certification as a firefighter I and firefighter II. The MSFCA objectives are based on the National Fire Protection Association's (NFPA) 1001 Standard on Fire Fighter Professional Qualifications. This will prepare the student to function at or above the minimum level of training for entry into a fire protection career field.
Prerequisite(s): None

FIRE1108 Firefighter I and II Skills 4 0/4/0
This course covers the objectives of the Minnesota State Fire Chiefs Association (MNFCA) for certification as a Firefighter I and II. The MNFCA objectives are based on National Fire Protection Association (NFPA) 1001 Standard on Fire Fighter Professional Qualifications. This will prepare the student to function at or above the minimum level of training for entry into a fire protection career field.
Prerequisite(s): Corequisite: FIRE1106

FIRE1112 Fire Apparatus 3 1/2/0
This course covers the major types of firefighting apparatus such as pumpers, tankers (tenders), aerial ladders, elevation platforms, rescue units, aircraft crash vehicles and other support vehicles. Students will be taught the operation of and operator maintenance of fire service vehicles.
Prerequisite(s): Valid drivers license

FIRE1150 HazMat Operational 3 2/1/0
This course is designed to teach the necessary skills to protect yourself, your fellow responder and the public from exposure in a hazardous materials incident. The course meets the requirements of the OSHA 1910.120 for the First Responder Operation level. The student will learn how to recognize and identify the presence of hazardous materials, the proper protective clothing to use, how to decontaminate properly, how to establish an incident command system and the proper standard operating procedures to maintain safety at the incident scene. The course follows the NFPA Standard 472 requirements for the First Responder Operational level.
Prerequisite(s): None

FIRE1152 Building Construction 3 3/0/0
This course is designed to teach the student the principles used in constructing various types of buildings. The student will learn the basic principles used and types of construction found in the U.S. The curriculum follows the standards set by NFPA 1001 - Fire Fighter II and NFPA 1021 - Fire Officer.
Prerequisite(s): None

FIRE1154 Company Functions 2 2/0/0
This course is designed to apply the training and knowledge learned in Fire Fighter I, II and III to company operations. Upon completion, the student should be able to work effectively as part of a group and be able to carry out specific company assignments.
Prerequisite(s): None

Course #	CourseTitle	CR	Lec/Lab/OJT

FIRE1160 Vehicle Extrication 1 0/1/0
This course covers the current national standards and practices involved in removing victims from various types of entanglements within a motor vehicle. This course will cover the latest information on rescuer safety, supplemental restraints in vehicles, alternative fuels and the hazards associated with motor vehicle accidents. The student will become familiar with and utilize hand and power tools, including heavy hydraulics to disentangle victims from motor vehicle wreckage.
Prerequisite(s): None

FIRE1170 High Angle/Low Angle Rope Rescue 2 0/2/0
This course covers rescue situations involving working at low grade and elevated heights. Ropes, knots, rigging, climbing systems, lowering systems and rappelling will be utilized in removing victims from simulated elevations and accessible from below grade areas.
Prerequisite(s): None

FIRE1180 Building Construction for Fire Protection 3 3/0/0
This course provides the components of building construction related to firefighter and life safety. The elements of construction and design of structures are shown to be key factors when inspecting buildings, preplanning fire operations and operating at emergencies.
Prerequisite(s): Two years of experience with the rank of firefighter or higher in an organized fire department regardless of volunteer or career status

FIRE2020 Fire and Emergency Services Administration 3 3/0/0
This course introduces the student to the organization and management of a fire and emergency services department and the relationship of the government agencies to the fire service. Emphasis is placed on fire and emergency service, ethics and leadership from the perspective of the company officer as described in the National Fire Protection Association's (NFPA) 1021 Fire Officer Professional Qualifications 2009 Edition for state certification for Fire Officer I and Fire Officer II.
Prerequisite(s): Two years of experience with the rank of firefighter or higher in an organized fire department regardless of volunteer or career status.
ProBoard of International Fire Service Accreditation Congress (IFSAC) Firefighter I and Firefighter II certification or the equivalent from an equally accredited agency

FIRE2030 Fire Instructor I 2 2/0/0
This course introduces students to the various objectives of the National Fire Protection Association (NFPA) 1041 Fire Service Instructor Professional Qualifications 2009 Edition for state certification for Fire Instructor I. This will prepare the student to function at the minimum level of training for a fire service instructor.
Prerequisite(s): Two years of experience with the rank of firefighter or higher in an organized fire department regardless of volunteer or career status.
ProBoard of International Fire Service Accreditation Congress (IFSAC) Firefighter I and Firefighter II certification or the equivalent from an equally accredited agency.

FIRE2040 Fire Protection Systems 3 3/0/0
This course provides information relating to the features of design and operation of fire alarm systems, water-based fire suppression systems, special hazard fire suppression systems, water supply for fire protection and portable fire extinguishers.
Prerequisite(s): Two years of experience with the rank of firefighter or higher in an organized fire department regardless of volunteer or career status.

FIRE2050 Fire Prevention 3 3/0/0
This course provides fundamental knowledge relating to the field of fire prevention. Topics include history and philosophy of fire prevention; organization and operation of a fire prevention bureau; use and application of codes and standards; plans review; fire inspections; fire and life safety education; and fire investigation.
Prerequisite(s): Two years of experience with the rank of firefighter or higher in an organized fire department regardless of volunteer or career status

FIRE2060 Strategy and Tactics 2 2/0/0
This course provides the principles of fire ground control through utilization of personnel, equipment and extinguishing agents.
Prerequisite(s): Two years of experience with the rank of firefighter or higher in an organized fire department regardless of volunteer or career status

FIRE2080 Fire Service Leadership and Management 3 3/0/0
This course will explore the skills necessary to function as a supervisor within a tight-knit, family-like setting. Topics will include motivating employees; group dynamics; managing change; organizational behavior; organizational culture; performance evaluations; leadership theories; group cohesiveness; generational considerations; and personal leadership styles.
Prerequisite(s): Two years of experience with the rank of firefighter or higher in an organized fire department regardless of volunteer or career status

FNCS1111 Intro to Financial Services 3 3/0/0
This course covers the history of banking, bank organizational structure, the Federal Reserve System and the types of services provided by financial institutions. Deposit, loan and consumer services will be emphasized. Topics include checking accounts, savings accounts, credit cards, electronic funds transfer, loan products, loan processing, trusts, bank profitability, deregulation and safety of bank funds. This course also gives attention to industry concern about customer service, sales, marketing and competition.
Prerequisite(s): None

FNCS1114 Consumer Lending 3 2/1/0
This course covers the fundamental procedures used by consumer lenders in making lending decisions. The student will perform loan interviewing, credit investigation, loan pricing and the preparation of documents for consumer loans. Students will develop notes, security agreements, contracts and other supporting credit documents. Topics will include consumer loan servicing, credit products, marketing, loan documentation, loan portfolio management, lien searches and the functions of the Uniform Commercial Code.
Prerequisite(s): None

FNCS1118 Personal Finance Prod/Cust Srvc 3 2/1/0
This course covers the sale of new checking, savings and certificate accounts and other financial products. The student will prepare account applications, check orders and all forms necessary for the sale of all financial products. The student will also conduct simulated sales of financial products. Topics include checking accounts, savings accounts, certificates of deposits, savings bonds, cashiers checks, loan payments, money orders and all other financial products and services.
Prerequisite(s): None

FNCS1122 Teller Applications 3 3/0/0
This course covers the accepting and processing of financial cash items, Canadian exchange, operating teller machines and cash drawer balancing. Topics include deposit procedures, withdrawal procedures, teller machine processing, cash management, buying and selling Canadian funds, accepting loan payments, processing all financial products and robbery.
Prerequisite(s): None

FNCS1126 Credit Counseling and Collections 2 2/0/0
This course covers the procedures used by credit managers and support staff in counseling past-due credit accounts and in recovering bad debts. Counseling activities will include conducting a simulated interview of overextended debtors, preparing a debt management plan and advising customers. Credit recovery activities will include preparing a collection plan, skip-tracing plan and collection letters. Topics include fair debt collection practices, consumer debt management, account contact procedures and credit counseling.
Prerequisite(s): None

FNCS2110 Trends in Financial Services 3 3/0/0
This course covers a wide range of topics that influence and shape the financial service industry. Emphasis will be placed on the current economic conditions, both U.S. and global. Others topics include retail banking, sales, networking and follow-up, internal and external fraudulent activities, online use and the Internet and ethical issues. This course will give attention to industry concern about customer care issues such as confidentiality and empathy.
Prerequisite(s): None

FNCS2210 Financial Statement Analysis 3 2/1/0
This course covers the principles used in analyzing borrower financial statements and budgets as performed by a credit analyst. The student will learn how to prepare, read and analyze financial statements. Topics include analysis of income statements, balance sheets, funds flow, risk, obtaining and spreading statements, cash flow projections, capital accounts and financial ratios.
Prerequisite(s): ACCT2211, ACCT2201, FNCS1114

FNCS2220 Real Estate Lending 3 2/1/0
This course covers the fundamental procedures used by mortgage lenders and support staff in providing loans to homeowners. The student will prepare real estate financing applications, appraisals, truth-in-lending forms, disclosure settlement statements, collateral releases and other supporting credit documentation. Topics include mortgage types, FHA/VA/conventional financing, second mortgages, loan documentation, title insurance, foreclosure, construction financing and appraisal.
Prerequisite(s): FNCS1114

FNCS2240 Supervised Occupational Work Experience 3 0/0/3
This course is designed to provide the student with a learning occupational experience in the finance and credit service field. Each occupational experience is individualized. A training plan is created for each student in conjunction with the training site to provide experience related to the skills and knowledge acquired in the Financial Credit Services major.
Prerequisite(s): None

FREN1111 Beginning French I 4 4/0/0
This course is the first semester of Beginning French. Basic instruction is provided in the correct form and use of the French language in the present, past and informal future tenses of the indicative mood. Study concentrates on oral and written comprehension of simple French, verbal expression of personal themes, pronunciation and grammar. Culture, protagonists of the fine arts and contemporary daily life are also important components of this course.
Prerequisite(s): None

FREN1112 Beginning French II 4 4/0/0
This course provides continued basic instruction in the correct form and use of the French language. Study concentrates on oral and written comprehension of simple French; verbal expression of personal and extended themes; pronunciation and grammar in simple present, past, informal future and present perfect tenses of the indicative mood; present tense of the subjunctive mood; and soft commands. Culture, protagonists of the fine arts and contemporary daily life are also important components of this course.
Prerequisite(s): FREN1111

FREN2211 Intermediate French I 4 4/0/0
Meets MNTC Goal Areas 8. French 2211 is the first semester of Intermediate French. Reading, writing, listening and speaking continue to be developed through a focus on historic, political, cultural and artistic expressions of the French-speaking world. Grammar from Beginning French 1112 is lightly reviewed. New grammatical skills include the perfect tense of the indicative mood and simple tenses of the subjunctive mood.
Prerequisite(s): FREN1112

FREN2212 Intermediate French II 4 4/0/0
Meets MNTC Goal Area 8. French 2212 is the second semester of Intermediate French. Reading, writing, listening and speaking continue to be developed through a focus on historic, political, cultural and artistic expressions of the French-speaking world. Grammar from Intermediate French 2211 is further developed to include the simple and perfect tenses of the indicative and subjunctive moods.
Prerequisite(s): FREN2211

FYE1101 First Year Experience 3 3/0/0
First Year Experience course is designed to help MState students strengthen and develop critical and creative thinking skills associated with a college academic experience, adapt socially to a new environment and make connections with faculty, staff and resource offices. Topics include an understanding of individual risks and barriers, multiculturalism, life and career planning and personal responsibility. This course is also designed to help students develop the basic skills necessary for academic success in college. Additional topics to be discussed may include (but are not limited to) time management, study skills, note- and test-taking skills, motivation and community and campus resources.
Prerequisite(s): None

GDTC1102 Drawing I 3 1/2/0
Students develop basic drawing and visual skills, working with two- and three-dimensional objects. Pencil drawing is emphasized.
Prerequisite(s): None

GDTC1104 Drawing II 3 1/2/0
The objective of this course is to develop a student's drawing abilities through the use of pen and ink, wash, markers, scratchboard and opaque watercolors.
Prerequisite(s): None

GDTC1113 Design and Layout I 3 2/1/0
This course introduces students to the basic elements and principles of design to begin basic layout. Students also begin to learn technical layout skills in Adobe InDesign.
Prerequisite(s): Corequisites: GDTC1134, GDTC1126

GDTC1115 Design and Layout II 3 2/1/0
As a second design course, students will expand upon their layout and basic design knowledge by learning how to apply grids to their layout and introduces the student to beginning brand concepts. This course focuses on creating design personalities for various projects.
Prerequisite(s): GDTC1113

GDTC1126 Digital Photography 3 2/1/0
The student develops basic photographic skills and knowledge using a digital camera for a variety of assignments.
Prerequisite(s): None

GDTC1128 Typography 3 1/2/0
Students will learn the history, structure and terminology of typography. Projects produced by students will utilize type forms, rules and design styles.
Prerequisite(s): GDTC1113, GDTC1134

GDTC1134 Electronic Drawing I 3 2/1/0
This course covers fundamental functions of Adobe Illustrator or other vector-based equivalent instructor designated software, to create basic illustrations and layout.
Prerequisite(s): None

GDTC1144 Electronic Drawing II 3 2/1/0
This course covers the use of Adobe Illustrator or equivalent instructor designated vector based software using the Macintosh computer to create and manipulate electronic illustrations, layouts and artwork.
Prerequisite(s): GDTC1134

GDTC1150 Process Printing Theory 3 3/0/0
This course provides foundational theory on print process as well as printing terminology. Focus is on theory and not on application of technology.
Prerequisite(s): None

GDTC2203 Electronic Image Manipulation 3 2/1/0
Using tutorials, the student manipulates images in a variety of ways with Adobe PhotoShop or equivalent software.
Prerequisite(s): None

GDTC2204 Electronic Drawing III 3 1/2/0
This course covers complex functions of Adobe Illustrator or equivalent instructor designated vector-based graphic software. Students will create complex illustrations and layouts incorporating art brushes, plug-in filters, gradient meshes and other advanced commands.
Prerequisite(s): GDTC1134, GDTC1144

GDTC2212 Design and Layout III 3 2/1/0
Students focus on brand and identity development in this class. Each student develops a fictitious company and develops a logo identity, stationery and supporting brand materials including an exclusive brand identity guide. Students also learn about design research and presentation of their work.
Prerequisite(s): GDTC1115

GDTC2214 Integrated Graphic Design 3 2/1/0
This course focuses on the advanced integration of Adobe software technology and graphic design application. Coursework will include a continuation of brand development and design of grid systems, advanced typographic application, color theory application and development of written and verbal design rationale.
Prerequisite(s): GDTC2212, GDTC2278

GDTC2238 Layout and Design Studio 3 1/2/0
Students work with the instructor on a one-to-one level developing individual projects for building their portfolio with more refinement on areas the student is either interested in that requires further development.
Prerequisite(s): GDTC2203, GDTC2212

GDTC2240 Lighting Techniques 2 1/1/0
This program is intended for applicants with a strong interest in photography and image manipulation. Successful applicants will have knowledge of photography and demonstrate an understanding of imaging fundamentals. They will build a diverse portfolio of photographic and illustrated images addressing a wide range of practical applications, along with artistic and technical skills. Students will work primarily in digital photography and imaging.
Prerequisite(s): GDTC1126

GDTC2242 Electronic Publishing 3 2/1/0
Students learn technical skills necessary for page layout on the computer using Adobe InDesign or equivalent software.
Prerequisite(s): None

GDTC2244 Adv Electronic Imaging 3 2/1/0
This course covers digital image creation, manipulation and preparation for output using a variety of advanced functionality of Adobe PhotoShop, Adobe Illustrator and QuarkXPress or equivalent instructor-designated raster, vector and publishing software.
Prerequisite(s): GDTC1144, GDTC2203

GDTC2246 Advanced Photography and Imaging 4 2/2/0
This program is intended for applicants with a strong interest in photography and image manipulation. Successful applicants will have knowledge of photography and demonstrate an understanding of imaging fundamentals. They will build a diverse portfolio of photographic and illustrated images addressing a wide range of practical applications, along with artistic and technical skills. Students will work primarily in digital photography and imaging.
Prerequisite(s): GDTC1126, GDTC2203

GDTC2258 Graphic Dsgn Prof Prac 3 2/1/0
This course addresses the professional practice of graphic design technology. The course will include the following topics: project planning and management, resume writing, interviewing skills, presentation techniques, freelance business operation and portfolio preparation.
Prerequisite(s): GDTC2212, GDTC2242

GDTC2276 Graphic Dsgn Internship 3 0/0/3
Students are placed temporarily in a partnering graphic industry establishment where they are able to utilize their graphic design technology skills in a real-world experience.
Prerequisite(s): GDTC2203, GDTC2212

GDTC2278 Digital Preflight 3 2/1/0
On the Macintosh computer, students will create and analyze electronic mechanical files to determine and rectify potential conflicts, if necessary, that might arise in generation of output at imagesetter. Students will present electronic files to a service bureau for evaluation at the industry level. Utilize Photoshop, Illustrator and Quark or other raster, vector, or publishing software as determined by the instructor.
Prerequisite(s): GDTC2242

GEOG1110 World Geography 3 3/0/0
Meets MNTC Goal Areas 5 and 8. Students will gain an understanding and appreciation of the spatial relationship of the physical and human elements of our world with an emphasis on the interdependence of nations and peoples. Geography describes the earth's environments and gives character to places through words, maps and graphics and this course will explore these elements and their contributions to the diversity of world geographics. The student will become aware of how the world and the earth's people interact in local regions and in patterns around the globe.
Prerequisite(s): None

GER1111 Beginning German I 4 4/0/0
Study concentrates on oral and written comprehension of simple German; verbal expression of personal and extended themes; pronunciation and grammar in simple present, past, informal future and present perfect tenses of the indicative mood; present tense of the subjunctive mood; and soft commands. Culture, protagonists of the fine arts and contemporary daily life are also important components of this course.
Prerequisite(s): None

GER1112 Beginning German II 4 4/0/0
This course provides continued basic instruction in the correct form and use of the German language. Study concentrates on oral and written comprehension of simple German, verbal expression of personal and extended themes, pronunciation and grammar in simple present, past, informal future and the present perfect tenses of the indicative mood; and the present tense of the subjunctive mood and soft commands. Culture, protagonists of the fine arts and contemporary daily life are also important components of this course.
Prerequisite(s): None

Course #	CourseTitle	CR	Lec/Lab/OJT

GLST1121 Humanities Italy 3 3/0/0
Meets MNTC Goal Areas 6 and 8 and is taken in conjunction with Humanities 1120: Culture of Italy I and includes travel to Italy. The content of this course aligns with curriculum materials studied in the prerequisite course and will serve as a reinforcement of the Italian culture and an understanding of the integration of the arts within the culture.
Corequisite(s): Completion of Humanities 1120

GLST1126 Cultures of Italy and Greece II 3 3/0/0
Meets MNTC Goal Areas 6 and 8. This course is taken in conjunction with Humanities 1125: Culture of Italy I and includes travel to Italy and Greece. The content of this course aligns with curriculum materials studied in the co-requisite course and will serve as a reinforcement of the student's understanding of the integration of the arts in the cultures of Italy and Greece.
Prerequisite(s): None

GLST1500 Global Studies: International Internship 3 0/0/3
Meets MNTC Goal Area 8. This course will focus on understanding the political, economic, cultural and social factors that shape the society of another country through an internship in the country. A study of a variety of bodies of literature including but not limited to social science research, political, intellectual and social history, economics, literature and cultural expressions in the arts, music and theater will provide the foundation for the course. Taken together with the internship, these elements will provide a basis for understanding the country of study.
Prerequisite(s): None

GLST1510 Global Studies: Natural Science 3 3/0/0
Meets MNTC Goal Areas 3 and 8. This travel abroad trip is taken in conjunction with specific content-based courses and includes visits to sites discussed in the classroom. The content of this course aligns with curriculum materials studied in the prerequisite course and will serve as a reinforcement of the concepts. This course includes scheduled academic activities in international locations as determined by the instructor.
Prerequisite(s): The instructor will designate a prerequisite science course

GSCI1108 Info Retrieval - 21st Century 1 0/1/0
This course prepares students for searching, interpreting and retrieving information using print indexes, online databases, CD-ROMS and Internet.
Prerequisite(s): CPTR1104

GSCO1102 Applied Communications 3 3/0/0
This course is designed to teach the basics of style and substance in oral and written communications. It will allow students to gain confidence in preparing, practicing and evaluating written and oral work; provide insights into the thinking process in general, as well as insights into the thinking process which produces clear, creative and logical speeches and composition; and understanding the vital role of communication in the world of work.
Prerequisite(s): ENGL0050 or satisfactory score on the communications placement test

GSMS1000 Technical Mathematics 3 3/0/0
This course presents basic mathematical topics as they are applied in a technical program. The course includes a review of basic mathematical operations and continues with the development of algebraic and trigonometric skills in a technical setting. Most concepts will be applied through course specific problems. This course is not intended for transfer.
Prerequisite(s): MATH0052 or satisfactory score on the math placement test

GSMS1002 Technical Trigonometry 2 2/0/0
This course emphasizes the application of basic algebra and trigonometry in problem solving. Topics covered will include algebraic equations, trigonometric functions and their properties, trigonometric identities, vector analysis and graphs of trigonometric functions.
Prerequisite(s): MATH0090 or satisfactory score on the math placement exam

GSMS1004 Technical Trigonometry II 3 3/0/0
This course emphasizes the application of basic algebra and trigonometry in problem solving. Topics covered will include algebraic equations, trigonometric functions and their properties, trigonometric identities, vector analysis and complex numbers.
Prerequisite(s): GSMS1002 or satisfactory score on the math placement exam

GSMS1102 Intro to Nutrition 2 2/0/0
This course is designed to introduce the student to the science of nutrition, the study of food nutrients and other substances, and their action, interaction and balance. Special emphasis is placed on the interrelationship between diet, nutrition, health and disease.
Prerequisite(s): None

GSMS1104 Intro to Anatomy and Physiology 3 3/0/0
This course is designed to assist the student in developing a basic understanding of the normal structure and function of the body.
Prerequisite(s): None

GSMS1110 First Aid / CPR 1 .5/.5/0
This course teaches basic life support using American Heart Association or American Red Cross guidelines and first aid using American Academy of Orthopaedic Surgeons (AAOS) or American Red Cross guidelines.
Prerequisite(s): None

GSMT1600 eBusiness Auctions 2 2/0/0
The eBay community includes more than 100 million registered members from around the world. People spend more time on eBay than any other online site, making it the most popular shopping destination on the Internet. The Internet business model has changed the way people conduct business. Can you benefit from participating in online auctions? This course covers the basics of conducting business using an online auction service. Students will learn and employ strategies to increase their bidding and selling expertise while minimizing the dangers involved with online commerce security.
Prerequisite(s): None

GSSI1104 Human Relations 3 3/0/0
This course is designed to help the student gain an awareness of and improve upon human relationships especially appropriate to the workplace. This course is a study of human relations as it relates to an employee's relationship with him/herself, co-workers, supervisors and customers. Emphasis will be placed on team building, sexual harassment and cultural diversity in the workplace.
Prerequisite(s): None

GSSI1112 Contemporary Economics 3 3/0/0
This course introduces the general concepts of economic issues that affect everyone, from one's personal economic problems to the economic problems of our society, our nation and the world.
Prerequisite(s): None

GSWS1102 Contemporary Career Search 1 0/1/0
This course covers such contemporary career topics as employer expectations, job market trends, networking and various aspects of the employment search process, including legal and ethical issues. To apply their knowledge of the employment process, students develop resumes, letters and applications, as well as identify and use effective interviewing techniques. This course emphasizes a comprehensive knowledge of career processes that will serve students throughout their working lives.
Prerequisite(s): None

GSWS1108 Wellness and Work 1 1/0/0
This course explores the choices people make with regard to their own health and how this affects their work performance and relationships with co-workers. Participants will assess their current lifestyle, design a wellness plan and work toward integration of wellness concepts in their personal and professional lives. The composition and effectiveness of worksite wellness programs are also examined.
Prerequisite(s): None

HEAT2218 Gas Heating 2 1/1/0
This course covers gas heating units, primarily furnaces. Emphasis is placed on understanding the operating systems and their sequence within the furnace: mechanical, electrical and combustion. Diagnosis and repair of malfunctioning furnaces is a significant portion of this course.
Prerequisite(s): CONE1102, HEAT1104

HEAT2220 Oil Heating 2 1/1/0
This course covers the use of oil as a means used to heat various mediums such as air, water, etc.
Prerequisite(s): CONE1102, PLBG1128

HEAT2222 Wire Feed Welding 1 0/1/0
This course will focus on 120-volt wire-feed welders. These welders are typically used in the HVAC industry in commercial HVAC installations for minor fastening of various metals. Students will learn to weld both light and heavy gauge metals, light angle iron and some galvanized materials.
Prerequisite(s): None

HIST1110 Western Civilization: Ancient-1400 3 3/0/0
Meets MNTC Goal Areas 5 and 8. A discussion of the political, economic, cultural and social factors which have shaped the history of the Western world. Topics include ancient civilizations, the Hebrews, the Greeks, the Romans, the rise of Christianity, feudalism and manorialism, the rise of Islam, the Merovingians and the Carolingians.
Prerequisite(s): None

HIST1111 Western Civilization: 1400-1600 3 3/0/0
Meets MNTC Goal Areas 5 and 8. A discussion of political, economic, cultural and social factors which have shaped the history of the Western world. Topics include the Renaissance, the rise of capitalism, the Reformation, the emergence of nation states and the Age of Absolutism.
Prerequisite(s): None

HIST1112 Western Civilization: 1600-1800 3 3/0/0
Meets MNTC Goal Areas 5 and 8. A discussion of the political, economic, cultural and social factors which have shaped the history of the Western world. Topics include the English Revolution, the Intellectual Revolution, the French Revolution and the Industrial Revolution.
Prerequisite(s): None

HIST1113 Western Civiliation: 20th Century 3 3/0/0
Meets MNTC Goal Areas 5 and 8. A discussion of the political, economic, cultural and social factors which have shaped the history of the Western world. Topics include Marxism, the Industrial Revolution, the Age of Progress, World War I, the rise of fascism, World War II and the Cold War.
Prerequisite(s): None

HIST1500 European Experience 3 3/0/0
Meets MNTC Goal Areas 5 and 8. This course combines an on-campus component with a trip to Europe. During the on-campus portion of the course, students will learn about major events in British and French history such as the French Revolution, the Napoleonic era, the War of the Roses and the reign of Henry VIII. After the on-campus component is completed, students embark on a 10-day trip to Paris and London during which they visit historic sites about which they learned during the on-campus portion of the course.
Prerequisite(s): None

HIST1600 History of Baseball 3 3/0/0
Meets MNTC Goal Area 5. This course deals with the importance of baseball in America. It not only examines the history of the game itself, but also emphasizes the ways in which baseball has shaped American society and American society has shaped baseball.
Prerequisite(s): None

HIST1800 History of the Civil Rights Movement 3 3/0/0
Meets MNTC Goal Areas 5 and 7. This course looks at the history of the Civil Rights Movement from the time of Reconstruction to the present. Beginning with the freeing of the slaves, historical, social, political and cultural factors that shaped the civil rights movement are presented.
Prerequisite(s): None

HIST2211 American History Colonial Period 3 3/0/0
Meets MNTC Goal Areas 5 and 7. This is the first course in an American History sequence. The course content is essentially the colonial period in American history, including European and West Indian background, the rise of colonial "regions" in English North America, the clash of three cultures and races, the maturing of the English colonies and movement toward the Revolution. This course is most likely to be of value to those who have little background in colonial American history.
Prerequisite(s): None

HIST2212 American History 19th Century 3 3/0/0
Meets MNTC Goal Areas 5 and 7. This is the second course in an American History sequence. The course content is America's 19th century, defined as the 1780s to 1877. Consideration is given to the Constitution of 1787, the Washington adminstration, Jeffersonian policies, the War of 1812, the slavery controversy, the Civil War and Reconstruction.
Prerequisite(s): None

HIST2213 American History: 20th Century 3 3/0/0
Meets MNTC Goal Areas 5 and 7. This course covers the history of the United States during the 20th century. Topics include the Progressive Era, World War I, the Roaring 20s, the Great Depression, the New Deal, World War II, the Cold War, the Korean Conflict, scientific advancements of the 1950s and 1960s, the Civil Rights Movement, the Cuban missile crisis, the Vietnam War and Watergate.
Prerequisite(s): None

HITM1150 Intro Health Info Science 3 3/0/0
This course is a study of the historical development of the health record and the health information profession. This course encompasses the generation, format and content of the health record as the basis of patient information systems. The student is given an opportunity to learn about the role of the health information professional and how that role is integrated into the health care delivery system.
Prerequisite(s): None

HITM1152 Health Information Systems 3 2/1/0
This course is a study of numbering systems, master patient index, filing systems, microfilming and retention considerations for health records. Basic concepts of information systems will be introduced including electronic data collection, storage, retrieval and other health information applications.
Prerequisite(s): None

HITM1155 Medicolegal Aspects 3 3/0/0
This course is the application of legal principles, policies, regulations and standards for the control and use of health information. Emphasis is placed upon the proper release of patient information and legal procedures involved in court disclosure of health record information.
Prerequisite(s): HITM1150

HITM1159 Clinical Affiliation I 2 0/0/2
This course provides the student with practical application of theories learned during the couse of study. Under the supervision of a qualified health information professional, the student gains professional practice experience.
Prerequisite(s): 11 HITM credits and 2.0 GPA

HITM2202 Cmptr Applic in Healthcare 3 2/1/0
This course develops the Health Information Technology student's knowledge of computer theory which allows the students to perform working applications in the areas of system collection, storage, retrieval and transcription.
Prerequisite(s): None

HITM2212 Intro to Coding ICD-9 2 1/1/0
This course covers an in-depth study of ICD-9-CM (International Classification of Diseases, 9th revision, Clinical Modification) coding.
Prerequisite(s): HLTH1106, BIOL2230

HITM2234 Coding III Advanced 3 2/1/0
This course is a continuation of the in-depth study of International Classification of Diseases (ICD-9-cm) coding and reimbursement in the health care delivery system.
Prerequisite(s): HITM2212

HITM2242 Intro to Coding CPT 2 1/1/0
This course covers an in-depth study of the Physician's Current Procedural Terminology (CPT) coding system.
Prerequisite(s): HLTH1106

HITM2245 Coding IV CPT 3 3/0/0
This course is a continuation of the in-depth study of the Physician's Current Procedural Terminology (CPT) coding system.
Prerequisite(s): HLTH1106, HITM 2242

HITM2250 Supervisory Leadership in Hlth 3 3/0/0
This course is a study of the basic principles of management, communication and working relationships in a health care setting. The role of the health record technician as a supervisor is discussed.
Prerequisite(s): None

HITM2252 Quality Mgmt and Statistics 3 2/1/0
This course covers the components of quality improvement systems, including quality assessment, utilization review and risk management. This course is also a study of collecting, computing, analyzing, interpreting and presenting numerical data relating to health care services.
Prerequisite(s): HITM1152

HITM2259 Clinical Affiliation II 3 0/0/3
This course provides the student with practical application of the classroom theories and coursework. Under the supervison of a qualified clinical supervisor, the student gains professional practice experience.
Prerequisite(s): 55 credits and 2.0 GPA

HITM2262 Reimbursement Systems 2 2/0/0
This course is an introduction to the current reimbursement systems that are used in the health care industry in inpatient and outpatient settings.
Prerequisite(s): HITM2212, HITM2242

HITM2270 Professional Practice Experience II 1 0/0/1
This course provides the student with practical application of classroom theories and coursework. Under the supervision of a qualified supervisor, the student gains professional practice experience in supervisory functions.
Prerequisite(s): HITM1155

HITM2272 Professional Practice Experience III 2 0/0/2
This course provides the student with practical application of classroom theories and coursework. Under the supervision of a qualified supervisor, the student gains professional practice experience in coding and reimbursement.
Prerequisite(s): HITM2270

HLTH1102 Health Career Exploration 1 1/0/0
Many people are not aware of the many career opportunities in the health care field. This course will provide information about health care careers for the purpose of assisting the student in the career decision-making process. The health care system will be described and the characteristics and responsibilities of health care providers will be discussed.
Prerequisite(s): None

HLTH1104 Medical Law and Ethics 1 1/0/0
This course covers the fundamentals of bioethics, ethical codes, confidentiality, patient rights, humanistic health care, legal terminology, legal judgments, documents and litigation. Students apply this knowledge through discussion of bioethical dilemmas, role playing, conferencing and analysis of medicolegal situations.
Prerequisite(s): None

HLTH1106 Medical Terminology 2 2/0/0
This course covers prefixes, suffixes and roots used to compose medical terms. The student learns to spell, pronounce, define, analyze and formulate terminology related to body structure, disease, diagnosis and treatment. Medical abbreviations are also included.
Prerequisite(s): None

HLTH1111 Personal and Comm Hlth 3 3/0/0
A study of normal body functions and health practices. Designed to help the student maintain good physical, mental and social well-being. Topics include anatomy and physiology, emotional and mental health, drug use and abuse, and nutrition and fitness. Course is designed to prepare the students to meet health responsibilities in the home and in the community, to prepare students to understand the aging process and to be more knowledgeable consumers. Topics of study include disease and treatment, sexuality and parenting, health limits and consumerism.
Prerequisite(s): None

HLTH1112 Intro to Home Health 1 1/0/0
This course builds on the Nursing Assistant course to introduce the concepts of home care services and the goals and responsibilities of a home health aide. Topics of food and meal management, nutrition, basic emergency care procedures, documentation and reporting, ethics and confidentiality, and homemaking skills make up the foundation of this course. Care needs of special populations such as chemically dependent, developmentally delayed, pediatric and the handicapped are also discussed within this course. This course meets the requirements of the Minnesota Department of Health Home Health Aide course, and successful completion makes the student eligible to take the State Nursing Assistant/Home Health Aide registry exam.
Prerequisite(s): HLTH1115 or successful completion of a state approved nursing assistant course

HLTH1115 Intro to Nursing in Long Term Care 3 1/2/0
This course provides an introduction to the concepts of infection control, safe and clean environment, communication, lifespan issues, basic human care needs and special population care needs. The primary focus is on basic nursing care and the skills needed to safely and competently perform personal holistic care under the supervision of a registered nurse to clients in long term and acute care settings. It meets the requirements for the Minnesota Department of Health Nursing Assistant course, and successful completion allows the student to be eligible to take the State Registry Exam for Nursing Assistant.
Prerequisite(s): None

Course #	CourseTitle	CR	Lec/Lab/OJT

HLTH1120 Med Administration for Unlicensed Personnel 3 3/0/0
This course includes lecture establishing a knowledge base for medication administration and practice techniques intended to assist the aide in administering medications properly, safely and effectively.
Prerequisite(s): None

HLTH1121 Nursing Assistant-Home Health Aide 4 3/1/0
This course provides introductory training for those who want to work as a nursing assistant/home health aide. It introduces the concepts of infection control, safe and clean environment, communication, lifespan issues, basic human care needs, home care services, goals and responsibilities of a nursing assistant/home health aide, food and meal management, nutrition, basic emergency care procedures, documentation and reporting, ethics and confidentiality and homemaking skills. The primary focus is basic nursing care and the skills needed to safely and competently perform personal holistic care under the supervision of a registered nurse. This course meets the requirements for the Minnesota Department of Health Nursing Assistant/Home Health Aide course, and successful completion allows the student to be eligible to take the State Registry Exam for Nursing Assistant/Home Health Aide.
Prerequisite(s): None

HLTH1130 Transcultural Health Concepts 1 1/0/0
This course provides students with the opportunity to examine their own values, beliefs, attitudes and behaviors and to integrate this analysis in understanding cultural awareness while recognizing the significance that culture has on health beliefs and practices. This course will illustrate concepts across the continuum from cultural awareness to culturally competent care in relationship to providing holistic health care to a diverse group of patients. While this course has an emphasis on health care, other disciplines could apply cultural awareness to working with diverse populations in a variety of settings.
Prerequisite(s): None

HLTH1160 Medication Administration for Correctional Officers1 1/0/0
This course is designed for people who are hired to work in a jail setting and who are seeking employment in law enforcement or other criminal justice careers. This course provides a knowledge base for medication administration. Emphasis is placed on administering medications properly, safely and effectively.
Prerequisite(s): None

HLTH2002 Basic Pharmacology 2 2/0/0
This course introduces the student to basic pharmacological concepts, drug legislation and drug categories. Emphasis is placed on commonly used drugs and their effects on body systems. Drug reference utilization is included.
Prerequisite(s): Recommended: GSMS1104, HLTH1106

HLTH2208 Pathophysiology 3 3/0/0
This course presents information related to pathophysiology of various body systems. The nature, cause, diagnosis and treatment of common disease conditions will be emphasized.
Prerequisite(s): GSMS1104

HLTH2212 Social Seminar Drug Education 3 3/0/0
This course is designed to cover the use, abuse and dependency of legal and illicit drugs. Included are the physical and psychological effects and the problems related to drug use. The course will include guest lecturers, small discussions, videos and student presentations covering topics related to all forms of drugs and drug use including intervention and available sources to help deal with drug abuse.
Prerequisite(s): None

HLTH2214 Emergency Responder 3 3/0/0
The first responder-level course covers regular and more advanced first-aid practices and procedures including extrication and transportation, professional-level CPR, oxygen administration, long bone splinting, blood pressure monitoring, emergency childbirth, patient assessment, backboarding and stress management.
Prerequisite(s): None

HLTH2215 EMT Basic 6 4/2/0
The Emergency Medical Technician-Basic course follows the current National Standard Curriculum. This course will include all skills and classroom information necessary to provide emergency care at the basic life support level. Modules presented include (1) preparation of the EMT-B; (2) airway; (3) patient assessment (medical and trauma); (4) medical/behavioral emergencies and OB/GYN; (5) trauma; (6) infants and children; (7) ambulance operations; and (8) interventions (medications and semi-automatic defibrillation). Upon successful completion of the EMT-B course of instruction, the student will be eligible to take the State/National Registry computer and practical examinations.
Prerequisite(s): None

HONS1100 Introduction to Honors 3 3/0/0
Meets MNTC Goal Area 5. This course is intended to be taken by students during the first semester in the Honors Program. The course looks at knowledge, including the origins, nature, limits and history of knowledge.. Knowledge of political systems will also be examined, with an emphasis on the connections between governments and learning within given societies. The realm of knowledge within academia will also be addressed, with an emphasis upon debates over what curriculum should be taught in American classrooms.
Prerequisite(s): Must be a member of the Honors Program to register for this course

HONS1101 Introduction to Honors 1 1/0/0
Meets MNTC Goal Area 2. This course is for students enrolled in the Honors Program during the first semester of the program. The course is a variable content reading course which will emphasize critical thinking but be directed toward the academic interests of faculty and students. Each student will present a proposal for a capstone honors project at the end of the course.
Prerequisite(s): The student must be a member of the Honors Program to register for the course.

HONS2900 Honors Capstone Seminar 1 1/0/0
Meets MNTC Goal Area 2. This course is intended to be taken by students in the Honors Program during the final semester of the program. The course is a variable content reading course which will emphasize critical thinking but be directed toward the academic interests of faculty and students. Each student will present a capstone honors project at the end of the course.
Prerequisite(s): The student must be a member of the Honors Program to register for the course.

HRES1122 Human Resource Management 3 3/0/0
This course is an introduction to the basic principles of human resource functions and services. It provides a background and understanding for further human resource courses.
Prerequisite(s): None

HRES1126 Employee Processes 3 3/0/0
This course covers basic knowledge of the factors to be considered and the strategies used in the employment process. This includes job analysis, job descriptions, postings, employment ads and interviewing.
Prerequisite(s): None

HRES1130 Benefits Administration 3 3/0/0
This course covers basic knowledge and information about the various types of benefits that are typically offered by employers for their employees.
Prerequisite(s): None

HRES1134 Training and Development 3 3/0/0
This course covers basic information about the characteristics of effective orientation programs and the scope of an organization's ttraining and continuing development programs in building an effective work force.
Prerequisite(s): None

HRES2204 Policy Administration 3 3/0/0
This course covers basic information and understanding of the need for human resources policies in an organization, types of policies, the process of policy formulation and how policies are used.
Prerequisite(s): None

HRES2212 Wage/Salary Administration 3 3/0/0
This course covers basic knowledge and understanding of employee compensation and related federal laws.
Prerequisite(s): None

HRES2224 Employee/Labor Relations 3 3/0/0
This course covers basic information about the history of labor unions, current labor laws, the current role of labor unions, workers compensation laws and the rights of employees.
Prerequisite(s): None

HRES2245 HR Internship 1-4
This course will provide the student with a purposeful occupational experience in the human resources field. Each internship is an individualized experience. A training plan is created for each student in conjunction with the training site to provide experience related to the skills and knowledge acquired in the program. One credit of internship is equal to 45 hours of internship.
Prerequisite(s): Advisor approval

HRES2252 HR Competency and Portfolio Evaluation 2 1/1/0
This course reviews and reinforces the principles covered in the human resource program through the development of a comprehensive student portfolio and simulated activities related to program outcomes. The course also develops knowledge of career processes and the skills needed in conducting an effective job search.
Prerequisite(s): Advisor approval

HUM1101 Intro to Humanities 3 3/0/0
Meets MNTC Goal Areas 2 and 6. This course serves as a general introduction to the role that humanities - the arts, literature and philosophy - play in shaping humanity's conception of itself and society. This course serves to expand the student's knowledge of the human condition and human cultures, especially the values expressed in works of human imagination and thought. This course also covers thinking skills by developing thinkers who are able to unify factual, creative, rational and value-sensitive modes of thought.
Prerequisite(s): None

HUM1105 Religion in the Humanities 3 3/0/0
Meets MNTC Goal Areas 6 and 8. This course is an exploration and study of religious expression and experience as well as an introduction to the world's major religions. The focus of the course will be on human expression of religious belief and philosophy in literature, film, music and art and will cover a variety of world religions, including Buddhism, Hinduism, Islam, Judaism and Christianity. Throughout the course, students will explore diversity and human religious expression as a way of enhancing their global perspective.
Prerequisite(s): None

HUM1110 Native American Culture 3 3/0/0
Meets MNTC Goal Areas 2, 6 and 7. This course is an interdisciplinary study of the social and cultural life of Native Americans, primarily the Plains Indians. Students consider traditional and contemporary expressions of native peoples as well as the history from which these expressions spring, especially the impact that contact with European peoples had and continue to have on Native American ways of life.
Prerequisite(s): None

HUM1120 Culture of Italy I 3 3/0/0
Meets MNTC Goal Areas 6 and 8. This multi-discipline course will introduce students to a close study of the art, drama and music of Italy. Students will develop an appreciation of the Italian culture and an understanding of the integration of the arts within the culture. Upon completion of HUM 1120, students will be eligible for HUM 1121-SSCulture of Italy II.
Prerequisite(s): None

HUM1132 Women in the Humanities 3 3/0/0
Meets MNTC Goal Areas 6 and 7. A study of the contributions of women in the humanities as writers, artists and social reformers with emphasis on the 20th century women. The course will incorporate individual studies of Quaker women, frontier women, African American women and Native American women.
Prerequisite(s): None

HUM1134 Global Perspectives for Women 3 3/0/0
Meets MNTC Goal Areas 6 and 8. A multi-disciplinary study designed to enhance international perspectives on women in the humanities with emphasis on 21st century women's cultural contributions as composers, artists and social reformers. The course will incorporate studies on women of China, Latin America and Europe.
Prerequisite(s): None

HUM2210 Introduction to Film 3 3/0/0
Meets MNTC Goal Areas 2 and 6. This course offers students an overview of the elements that comprise "telling stories on film." Students will study shot, angle, lighting, mise en scene, movement, editing, sound, etc. The course will also consider how film elements work to present various ideologies. Students will become familar with open and closed forms and the distinctions among realism, classicism and formalism. Students will participate in film analysis using the concepts above.
Prerequisite(s): None

HUM2230 World Cinema 3 3/0/0
Meets MNTC Goal Areas 6 and 8. This course will introduce students to films from non-English speaking countries around the globe. The course will study stories and societies through cinema, readings and lecture. Students will consider their own world view while they screen films and analyze multiple themes and ideas as a means of enriching their global perspectives.
Prerequisite(s): None

HUM2236 Technology in the Humanities 3 3/0/0
Meets MNTC Goal Areas 2, 6 and 8. Developments in the arts, architecture, science, philosophy, education and studies in human interaction are often provoked by changes in technology. Early changes in military technology made it possible for civilizations to take charge of various places on the world's stage. However, over time, changes in how the world was understood - motivated by general advances in global exploration, astronomy and other sciences, as well as specific inventions such as moveable type - proved even more instrumental in driving people to new and different understandings of what it means to be human. This course explores how technology impacts developments in a culture's world view and tries to anticipate how future changes in technology might alter the course of otherwise established ways of life.
Prerequisite(s): None

HUM2281 Culture of the British Isles 3 3/0/0
Meets MNTC Goal Areas 6 and 8. This course will focus on the evolving culture of the British Isles during selected historical periods to the present time. A study of a variety of literature, artwork and music from England, Ireland and Scotland will provide a foundation for the accompanying field experience. Taken together, these cultural elements provide a basis for understanding the diverse population of the British Isles.
Prerequisite(s): None

HUM2293 Field Experience: Europe 3 0/3/0
Meets MNTC Goal Areas 6 and 8. A travel abroad field trip taken in conjunction with specific content-based courses involves visits to sites discussed in the classroom. The courses include 40 hours of scheduled academic activities in places such as London, Paris or other locations as determined by the instructor.
Prerequisite(s): None

HUM2295 Field Experience: The East 3 0/3/0
Meets MNTC Goal Areas 6 and 8. A travel abroad field trip taken to supplement content-based courses and involving visits to sites often discussed in the traditional classroom. The courses include 45 hours of scheduled academic activities in countries in the East and Middle East and Eastern Europe as determined by the instructor.
Prerequisite(s): None

HUM2500 Honors Colloquy 1-3
Meets MNTC Goal Areas 6 and 7. The content of the course, designed for honors students, will vary from semester to semester. The topic often will be tied to Phi Theta Kappa's Honors Topic. The course may be repeated for credit with a change in subtitle.
Prerequisite(s): This course is available only to members of the Honors Program

HVAC1102 Duct Fitting Construction 3 1/2/0
Standard sheet metal fittings will be constructed in this class. Familiarity with sheet metal shop equipment and various tools will be gained through the layout and construction of sheet metal projects. All fittings in this class will be found in standard duct applications.
Prerequisite(s): None

HVAC1104 HVAC Electrical Controls 3 1/2/0
This course covers the wiring of typical heating and cooling circuits, along with hook-up and installation of air conditioning.
Prerequisite(s): None

HVAC1128 HVAC Design and Installation 5 2/3/0
This course covers an overview of various heating controls and appliances; blueprints as applied to estimating heating and cooling loads; gas piping as installed in residential and light commercial jobs; safe HVAC practices; various venting codes and requirements; and sizing of furnaces, ductwork and piping.
Prerequisite(s): None

HVAC2202 Air Handling 2 1/1/0
This course studies the handling of masses of air, with attention to moving and replacing air at given velocities, quantities, temperatures and humidity. Additional attention to friction loss in ductwork and its calculation will involve various design applications and actual lab layout.
Prerequisite(s): HVAC1128

HVAC2204 Adv Duct Fitting Const 3 1/2/0
This course deals with standard transitional sheet metal fittings usually found in ductwork or on commercial roofing projects. The triangulation method is used to create fittings for which exit configurations differ from entry configurations.
Prerequisite(s): HEAT1102

HVAC2212 Hot Water Heating 3 2/1/0
This course covers both hot water baseboard and in-floor heating, with emphasis on calculations involved in hydronic heating.
Prerequisite(s): CONE1102, HVAC1128

HVAC2220 Heat Pump Theory 1 1/0/0
This course covers the methods by which mechanical processes are used to move heat from different sources into residential housing. Some attention to commercial methods will be covered. An example of this would be using the compression cycle of refrigeration to extract heat from the outside air.
Prerequisite(s): REFR1102

HVAC2250 HVAC Applications 1 0/1/0
This course will involve as much community interaction as possible, working with customers who want their air conditioners picked up, cleaned and adjusted. Students will be hooking up split-system air conditioners in the lab.
Prerequisite(s): REFR1110, REFR1112, HVAC1104

HVAC2254 HVAC Interrelated Topics 1 1/0/0
This course will add to the student's electrical knowledge regarding circuits and schematics. This course should be taken along with CONE102.
Prerequisite(s): None

HVAC2260 Refrigerant Certification 1 1/0/0
This course covers the information necessary to take the Environmental Protection Agency's refrigerant certification test.
Prerequisite(s): Either enrollment in the HVAC program at M State or employment in the HVAC industry

HVAC2290 Internship 1 0/0/1
This course will add to the student's electrical knowledge regarding circuits and schematics. This course should be taken along with Cone 102.
Prerequisite(s): None

IMMA1110 Intro Power and Mech Sys 3 1/2/0
This course will provide an overview of the design, operation and maintenance principles of basic mechanical system components. The terminology, theory, application and construction of mechanical components dealing with power transfer found within the typical factory will be discussed. The course is designed to provide an understanding of the basic physics principles that govern mechanical power transmission through the use of belt, chain and gear drives, clutch and braking mechanisms, coupling devices, linear actuators and bearings.
Prerequisite(s): None

IMMA1112 Mech Blueprint Reading 2 2/0/0
This course will teach the fundamentals of blueprint reading and will include the interpretation of geometric construction, multi-view projection, dimensioning, auxiliary and sectional views. The course will also include the identification of drafting symbols and conventional methods of presentation.
Prerequisite(s): None

IMMA2210 Special Topics-Maint. 3 3/0/0
This course provides participants with opportunities to explore and/or practice specific areas of interest related to industrial maintenance technologies and supervision. Special topic areas to be selected fall into the three broad categories of: (1) industrial maintenance processes and design technologies, (2) systems and components for industrial automation and (3) management and productivity improvement.
Prerequisite(s): Approval of topics selected by the participant

Course #	CourseTitle	CR	Lec/Lab/OJT

IMMA2223 Fluid Transport Lab 2 1/1/0
This class will teach the skills of construction, control and operation of hydraulic and pneumatic systems coupled with electrical/electronic controls. Participants will perform hands-on experiments where they construct circuits that teach the operation of individual components as well as complete systems used in real world applications. Assemblies involving fluid power and the modern control components used to regulate it will be emphasized.
Prerequisite(s): Math1100 and familiarity with fluid power and industrial electronics

INTD1108 HTML 3 2/1/0
Students will learn the basics of creating Web pages using up-to-date techniques with HTML, CSS and XHTML. In this hands-on course, students will learn to create standards-based Web pages that are cross-browser compliant, and they will learn to make their Web sites available on the Web by uploading pages to a Web server.
Prerequisite(s): None

INTD1113 Dreamweaver 3 2/1/0
Students will use Dreamweaver to design Web Sites. Emphasis will be on learning the Dreamweaver software application and graphic design concepts.
Prerequisite(s): None

INTD1117 Photoshop 3 2/1/0
Students will learn fundamental skills in developing Web graphic images using Photoshop. The course will concentrate on the design of graphics as it pertains to delivery over the internet.
Prerequisite(s): None

INTD1122 Databases on the Server 4 2/2/0
This course is an introduction to server-based database systems. It introduces students to the topics of relational database design, administering enterprise level database systems, SQL and XML. This class is designed to be taught on an enterprise-level database system such as Microsoft SQL Server, Oracle or MySQL. Microsoft Access should not be used except to demonstrate the differences in dialects of SQL.
Prerequisite(s): None

INTD1124 Cascading Style Sheets 3 2/1/0
This course will focus on the use of Cascading Style Sheets in the creation of Web pages. Students will learn how to create and utilize Cascading Style Sheets to provide sophisticated page layout and design for Web pages and Web sites. Students will learn how CSS helps ensure consistency across Web sites and helps simplify the complex task of Web site maintenance.
Prerequisite(s): INTD1108

INTD1130 E-Commerce 3 2/1/0
In this course students will learn how to conduct business online. Students will learn how to evaluate and manage the economic and technological issues associated with constructing an electronic-commerce Web site. Students will examine strategies and products available for building electronic-commerce sites.
Prerequisite(s): None

INTD1135 Electronic Commerce 3 2/1/0
This course introduces emerging online technologies and trends and their influence on the electronic commerce marketplace. Students will learn various revenue models and how to market on the Web. Next, the course introduces online auctions and various legal and ethical issues. Students will learn about important security issues such as spam and phishing. Students will learn how to plan for electronic commerce. Finally, students will develop an online marketing plan.
Prerequisite(s): None

INTD1140 JavaScript 3 2/1/0
In this course, students will be given a brief introduction to the technologies of the Internet and the World Wide Web, as well as how various Web programming technologies fit into this framework. Students will learn the basics of Web programming using JavaScript and apply programming concepts to client-side Web development.
Prerequisite(s): None

INTD1150 Databases on the Server 3 2/1/0
This course is an introduction to server-based database systems. It introduces students to the topics of relational database design, administering enterprise-level database systems, SQL and normalization. This class will be taught using an enterprise-level database system in MySQL.
Prerequisite(s): None

INTD2210 Interface Design 3 2/1/0
Students will learn the concepts and skills necessary for designing Web sites for the targeted user. This course is focused on the interface design process, with emphasis on the important topics of visual design, writing for the Web and accessibility.
Prerequisite(s): None

INTD2213 Flash 3 2/1/0
Students will learn how to design and deliver cross-platform, low-bandwidth animations, presentations and Web applications using Flash and Actionscript.
Prerequisite(s): None

INTD2226 Web Programming 3 2/1/0
In this class, students will utilize the knowledge learned in previous classes to create client-side programs used to manipulate Web applications. They will utilize project-planning skills and problem-solving techniques to write effective applications. The use of Ajax, rich internet applications and frameworks will also be introduced.
Prerequisite(s): INTD1140

INTD2228 Web Projects 3 2/1/0
In this class, students will utilize the knowledge learned in previous classes to create Web applications using both client and server-side technologies. The focus of this course is a top down approach where students are assigned a project, assess the needs of the project and develop a project plan. Then they will identify what it will take to complete that Web project. Students will participate in group-based programming activities, learn about project management and implement technologies as needed to create a working system.
Prerequisite(s): INTD2246, INTD2226

INTD2231 Emerging Technologies 1 0/1/0
As a computer professional, you will be constantly learning new technologies. Being able to search the Internet effectively is an important skill. Social media uses Internet and Web-based technologies to transform broadcast media monologues (one to many) into social media dialogues (many to many). It supports the democratization of knowledge and information, transforming people from content consumers into content producers. Students will explore the exciting new world of social media while researching new technologies. Students will learn to integrate and utilize the media as they learn it. These technologies will be used to conduct electronic research, and the student will be required to investigate emerging Web-related technologies and prepare a research proposal. After instructor approval, the student will research the selected topic using Web and trade journals as resources.
Prerequisite(s): None

INTD2234 Adv Web Site Project 3 2/1/0
In this course, students will use Web technologies to plan, design and create a professional portfolio that showcases the student's accomplishments in his/her major field and provides the student with a concrete representation of his/her skills and abilities.
Prerequisite(s): Student must have successfully completed a majority of the courses required in his/her program

INTD2236 Advanced Web Programming 3 2/1/0
In this class, students will utilize the knowledge learned in previous classes to create server-side PHP programs used to manipulate Web applications, files, e-mail and databases. They will utilize project-planning skills and problem-solving techniques to write effective applications.
Prerequisite(s): INTD1140, INTD2246

INTD2246 PHP 3 2/1/0
Students will learn how to develop dynamic Web sites using PHP. Topics covered will include basic syntax, deploying PHP Web pages and database connections.
Prerequisite(s): INTD1140

INTD2250 Interactive Media Internship 3 0/0/3
Students will arrange an internship with an employer and the instructor to work in a Web-related area or on a Web-related project. Students will develop a work plan with specific goals and outcomes. Internships require 46 work hours for each credit.
Prerequisite(s): None

LAND1102 Intro to Landscape/Horticulture 3 3/0/0
This course introduces students to the industry of landscape/horticulture and the use and care of trees, shrubs, lawn grasses and other plants in the human environment. The course integrates landscape design and exposes students to garden center operation along with other industry needs.
Prerequisite(s): None

LAND1105 Soils and Fertilizers 3 2/1/0
This course is a study of soils and plant nutrition. Emphasis is on physical and chemical properties, water, organic matter and life of soils. Process and methods of supplying nutrients to plants will be covered.
Prerequisite(s): None

LAND1108 Equipment Operations 2 2/0/0
In this course students will learn general operations and safety guidelines and specialized maintenance procedures for light, medium and handheld equipment use in landscaping. Students will also gain exposure to road safety DOT and equipment transportation methods.
Prerequisite(s): None

LAND1111 Landscape Horticulture 3 2/1/0
In this course students will learn about different kinds of plants and their basic characteristics; how plants grow, develop, reproduce and adapt to different environments; and optimal growing conditions. This course also teaches students about specific plants and potential problems such as pests and diseases.
Prerequisite(s): None

LAND1114 Garden Center Operations 3 3/0/0
In this course students will gain the understanding needed to operate and manage tree and shrubs nurseries and related facilities that develop domesticated plants products for transportation. Also covered is instruction in applicable principles of plant science, garden center operations, equipment operation and maintenance, safely procedures and personnel supervision. Learn to build and maintain good relationships with internal and external customers, and learn the role the customer team plays in developing, evaluating and improving customer service systems.
Prerequisite(s): None

LAND1117 Landscape Management 3 3/0/0
This course is designed to help students understand landscape management operations. It covers turf management, hand and small tool operation, safety, environmental issues

and the impact of design and maintenance requirements. Also introduced in this class are building codes, contractor requirements and contemporary business concepts such as workers compensation and liability insurance.
Prerequisite(s): None

LAND1120 Landscape Design Layout 3 2/1/0
This course introduces students to a working knowledge in traditional landscape and design layout. Students will also develop and apply skills in basic drafting techniques, reading plans, line work, graphics and concepts of scale. Local building codes are also addressed.
Prerequisite(s): None

LAND1123 Landscape Construction 4 2/2/0
This course covers the basics of surveying elements of landscaping construction and working with different resources such as concrete, masonry, stones, pavers and low-voltage electrical in the landscape industry. Students will also learn how to develop and read construction drawings, specifications for specific structure, material selection, cost estimation and site layout including preparation, grading and drainage.
Prerequisite(s): None

LAND1126 Ornamental Plant Maintenance 3 2/1/0
This course covers plant identification and maintenance. Special attention is paid to plants and turf used in regional landscapes. The individual characteristics, uses and environmental tolerance of different species will be discussed. Students will develop their ability to classify plants and understand common botanical names.
Prerequisite(s): None

LAND1129 Landscape Project 3 0/3/0
In this course students will design and build projects at different locations on the campus or at homes built by the carpentry program. The intent is to promote the development of innovative, healthy and environmentally sustainable landscapes and provide hands-on learning opportunities for students.
Prerequisite(s): None

MANF1400 Alternative Energy Products 3 3/0/0
This course introduces a variety of today's common alternative energy products and reviews their development and technical components. Products reviewed will include solar heat, solar hydronic, solar photovoltaic and wind energy. Cost and investment paybacks for consumers will be discussed.
Prerequisite(s): None

MANF1500 Qualit Systems 3 3/0/0
This course will introduce the common quality systems that exist in today's manufacturing environment. Topics will include data acquisition, quality systems (ISO/QS/AS) and continuous improvement methodologies.
Prerequisite(s): None

MANI1104 Preclinic Introduction 3 2/1/0
This course provides an introduction to skin and nail disorders, professional image, Minnesota laws and rules, safety and sanitation, anatomy, electricity and light therapy, chemistry and salon management.
Prerequisite(s): None

MANI1110 Preclinic Nail Care 3 1/2/0
This course provides students with the opportunity to develop the required speed and confidence necessary for entry-level manicuring and pedicuring skills. Students will perform manicures and pedicures on each other and on clients under the supervision of an instructor. This course also covers a variety of artificial nails and related safety precautions.
Prerequisite(s): None

MANI1134 Nail Clinic/License Prep 3 0/3/0
This course prepares students for their written examinations and skill certification.
Prerequisite(s): None

MANI1146 Manicurist Clinic I 3 0/3/0
This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work.
Prerequisite(s): None

MATH0052 Foundations of Math 3 3/0/0
This course presents basic mathematical operations to students. The course concepts cover operations on whole numbers, integers, fractions and decimals, as well as the applications of percents, ratios, proportions, measurements and basic geometry.
Prerequisite(s): Placement by assessment

MATH0090 Introductory Algebra 3 3/0/0
This course is an introduction to basic algebraic concepts. This course covers the use of expressions, solving equations and formulas, manipulating and graphing linear equations and inequalities in two variables, solving systems of equations, utilizing rules for exponents, performing operations on polynomials, factoring polynomials and solving equations using factoring.
Prerequisite(s): MATH0052 or appropriate math assessment test score

MATH0092 Foundations/Introductory Algebra 5 5/0/0
This course presents basic mathematical operations and an introduction to algebra to students while serving as a combination of M State courses Math 0052 and Math 0090. The course is intended to serve students choosing to complete two semesters of developmental mathematics coursework in one semester. The course concepts cover operations on whole numbers, integers, fractions and decimals, as well as the applications of percents, ratios, proportions, measurements and basic geometry. Also, this course covers the use of expressions, solving equations and formulas, manipulating and graphing linear equations and inequalities in two variables, solving systems of equations, utilizing rules for exponents, performing operations on polynomials, factoring polynomials and solving equations using factoring.
Prerequisite(s): By placement test

MATH1020 Intermediate Algebra 3 3/0/0
This course is the second preparatory algebra course and readies students for the first college-level mathematics course. Concepts studied in the course include rational expressions and equations, functions, radical expressions and equations, complex numbers and solving equations using factoring, completing the square and the quadratic formula.
Prerequisite(s): MATH0090 or placement test

MATH1100 World of Math 3 3/0/0
Meets MNTC Goal Areas 2 and 4. This liberal arts mathematics course provides an introduction to several areas and concepts in mathematics including problem solving, numerical sequences, methods of counting, probability and statistics. The course is appropriate as general education for those who do not intend to pursue the regular college mathematics courses.
Prerequisite(s): MATH1020 or by placement test

MATH1102 Finite Math 3 3/0/0
Meets MNTC Goal Areas 2 and 4. This course is an introduction to systems of linear equations and inequalities, matrices, linear programming, mathematics of finance and elementary probability and statistics. This course is intended for all liberal arts and science students, but is highly recommended for students in areas of management, health sciences and other applied technologies.
Prerequisite(s): MATH1020 or an appropriate placement test score

MATH1114 College Algebra 4 4/0/0
Meets MNTC Goal Areas 2 and 4. This course covers rational and polynomial functions, exponential and logarithmetric functions, inverse functions, quadratic equations, inequalities, matrices, progressions, complex numbers, theory of equations and variations and linear equations in one, two and three unknowns.
Prerequisite(s): MATH1020 or by placement test

MATH1115 Pre-Calculus 4 4/0/0
Meets MNTC Goal Areas 2 and 4. This course covers trigonometric functions, right triangle trigonometry, radian measure and circular functions, identities, equations, inverse functions, oblique triangles, complex numbers, vectors and polar coordinates. Included will be a study of the Conic sections and, time permitting, an introduction to limits and sequences.
Prerequisite(s): MATH1114 or by placement test

MATH1122 Applied Calc/Linear Alg 3 3/0/0
Meets MNTC Goal Areas 2 and 4. This course is an introduction to matrices and differential and integral calculus with an emphasis on application in the areas of business and the life and social sciences. This course is intended for all liberal arts and science students but is highly recommended for students pursuing business careers.
Prerequisite(s): MATH1114 or by placement exam

MATH1134 Analytical Geometry and Calculus I 5 5/0/0
Meets MNTC Goal Areas 2 and 4. This course covers limits and continuity, derivatives, definite and indefinite integrals of algebraic and trigonometric functions, as well as applications of the derivative and definite integral.
Prerequisite(s): MATH1115 or by placement test

MATH1135 Analytical Geometry and Calculus II 5 5/0/0
Meets MNTC Goal Areas 2 and 4. This course covers logarithmic and exponential functions, trigonometric and hyperbolic functions and their inverses, as well as techniques of integration, polar coordinates, conic sections, indeterminate forms, improper integrals and infinite series.
Prerequisite(s): MATH1134

MATH1207 Concepts of Applied Statistics 3 3/0/0
Meets MNTC Goal Areas 2 and 4. This course will investigate descriptive and inferential statistical concepts including measures of central tendency, measures of variation, measures of position, frequency tables, statistical graphs, probability distributions, one and two sample hypothesis tests, ANOVA, confidence intervals, regression and correlation.
Prerequisite(s): MATH1020 or by placement test

MATH1213 Intro to Statistics 4 4/0/0
Meets MNTC Goal Areas 2 and 4. This course is designed to be an introduction to statistics. Topics include data summary, frequency distributions, plots, graphs, measures of central tendency, variation, probabilities, probability distributions and confidence intervals. Hypothesis testing of means, proportions and variances will be conducted using the z-test, t-test, chisquare-test, f-test and ANOVA. A study of nonparametric statistics, sampling and simulation may also be included.
Prerequisite(s): MATH1114 or by placement test

MATH2200 Priniciples of Arithmetic 3 3/0/0
Meets MNTC Goal Areas 2 and 4. This course covers arithmetic as a system of thought, number and sets, basic number operations and their underlying formal logic, number structure, basic geometry concepts. This is a "mathematics" rather than a "methods" course.
Prerequisite(s): MATH1100, MATH1114 or by placement test

Course #	CourseTitle	CR	Lec/Lab/OJT

MATH2231 Analytical Geometry and Calculus III 4 4/0/0
Meets MNTC Goal Areas 2 and 4. Vectors in the plane and space, differentiation and integration of vector-valued functions and partial differentiation. Multiple integrals, including line and surface, in rectangular, polar, cylindrical, spherical and other systems. Stoke's Theorem, Greens Theorem and the Divergence Theorem.
Prerequisite(s): MATH1135

MATH2257 Linear Algebra 3 3/0/0
Meets MNTC Goal Areas 2 and 4. The course covers systems of linear equations, matrices, determinants, vector spaces, linear transformations, eigenvalues and eigenvectors.
Prerequisite(s): MATH1134

MATH2259 Differential Equations 4 4/0/0
Meets MNTC Goal Areas 2 and 4. This course includes first and second order differential equations with applications in physics, electrical engineering and chemistry. It also includes Laplace transforms, matrices, series solutions and systems of differential equations.
Prerequisite(s): MATH2231

MCDD1102 Mech Engineering Drawing I 3 1/2/0
The objective of this course is to develop the student's use and knowledge of machine drafting, lettering, line identity and application, orthographic projection, dimensioning practices, section and auxiliary drawings.
Prerequisite(s): None

MCDD1106 Mech Engineering Drawing II 4 0/4/0
The objective of this course is to develop the student's use and knowledge of pictorial drawings, sheet metal, pattern layout and welding drawing. Mechanical fasteners will be identified.
Prerequisite(s): MCDD1102

MCDD1120 Drafting Practices 2 2/0/0
The objective of this course is to develop the student's knowledge of engineering change orders, ECO-EON non-dimensioned drawings and tabulated drawings, engineering communications, attitudes, workforce diversity and finances.
Prerequisite(s): None

MCDD1122 Geometric Dimensioning and Tolerancing 3 2/1/0
The objective of this course is to develop the student's understanding and application of a self-defined set of symbols, rules, definitions and conventions used to describe the size, form, orientation and location of part features.
Prerequisite(s): MCDD1106

MCDD1124 Mechanical Drafting Applications I 3 1/2/0
The objective of this course is for the student to develop a set of working drawings of an existing machine project. A genealogy chart, final and sub-assembly drawings, detail drawings, parts lists and part numbering system will be completed.
Prerequisite(s): CADD1102, MCDD1102

MCDD2204 Mech Engineering Drawing III 4 1/3/0
The objective of this course is to explore advanced applications of mechanical drawing methods. The student will be introduced to and construct drawings related to multiple manufacturing and engineering disciplines.
Prerequisite(s): MCDD1106

MCDD2224 Manufacturing Process 2 2/0/0
The objective of this course is to develop the student's understanding of material processing, casting, molding, forming, separating operations, assembling, finishing and automation.
Prerequisite(s): None

MCDD2240 Machine Components and Mechanisms 3 1/2/0
The objective of this course is to develop the student's understanding and interaction of ball and roller bearings, lubrication, clutches, brakes and multiple gear types. The students investigate drive systems and construct mechanical drawings demonstrating their understanding of the systems.
Prerequisite(s): CADD2214, MCDD1106

MCDD2246 Tool Design 3 1/2/0
The objective of this course is to develop a basic understand of jigs, fixtures, dies and their function in mass production.
Prerequisite(s): CADD1114, MCDD1106

MCDD2248 CNC Application 3 1/2/0
The objective of this course is to develop the student's knowledge of basic programming using a 3-axis milling machine to produce simple parts from industrial wax.
Pre/Corequisite(s): CADD1102, ENGR1126

MCDD2252 Mechanical Drafting Applications II 4 1/3/0
The objective of this course is to develop the student's knowledge of the processes involved in design development, critical path scheduling and just-in-time production concepts. Gearing, shafts, chains, belts, bearings, lubrication and couplings are applied to the student's capstone project.
Prerequisite(s): CADD2214

MCDD2260 Mech CADD Dsgn and Detail Intern 3 0/0/3
The objective of this course is to develop and apply the student's drafting skills in the desired career field. Projects and discussions are coordinated to relate to the student's employment situation in an approved drafting occupation. Training verification and evaluation are required of each student. A maximum of 3 internship credits will apply toward graduation.
Prerequisite(s): 32 Pre-approved credits

Course #	CourseTitle	CR	Lec/Lab/OJT

MCOM1132 Newswriting 3 3/0/0
This elective course introduces students to writing for the media through critical thinking, decision making, writing and reporting in a real-world context. Course work will enable students to evaluate and produce informative and persuasive media writing, with emphasis on the organization, structure and style demanded by various media.
Prerequisite(s): None

MCOM1133 Modern Media 3 3/0/0
Meets MNTC Goal Area 9. This course provides an introductory overview of the rapidly growing world of mass communications, with an emphasis on the U.S., including newspapers, radio, television, film, books, magazines, advertising, public relations and new media technology. The concept of social responsibility will be examined, along with an overview of ethical, social, economic and political issues.
Prerequisite(s): None

MCOM1141 Student Newspaper 1 1/0/0
Students in this elective course will gain hands-on experience in writing, reporting, editing, designing, laying out pages and/or working with advertisers. Active involvement in the production of the student newspaper, The Spartan, is an integral part of this course.
Prerequisite(s): None

MCOM1151 Newspaper Photography 1 1/0/0
Students in this elective course will gain hands-on experience in writing, reporting, editing, designing, laying out pages and/or working with advertisers. Active involvement in the production of the student newspaper, The Spartan, is an integral part of this course.
Prerequisite(s): None

MCOM2100 Mass Media Internship 1-2
Students will gain hands-on experience working as an intern in an area mass media outlet. An internship may include but is not limited to working with newspapers, radio or television stations, including PEG Access or Web-based media. Experience will vary depending on location of internship.
Prerequisite(s): None

MCOM2240 Broadcast Journalism 3 2/1/0
Broadcast Journalism is the study of radio and television news. Students will learn a specific style of writing broadcast news stories from notes, satellite feeds, news releases and the Associated Press. Students will write and re-write stories for both radio and television and learn the basics of videotape editing television news stories.
Prerequisite(s): None

MCOM2270 Television Production 3 3/0/0
Television Production is an overview of the television broadcast industry and operation. Operating theories of video equipment, cameras, tape, lighting and audio will be explored. Emphasis is on theory and practical experience with television equipment in studio and remote productions.
Prerequisite(s): None

MCOM2290 Advertising/Public Relations Principles 3 3/0/0
Advertising/Public Relations Principles is an introductory survey of the theory, principles and functions of advertising and the role of advertising in social, economic and marketing systems. In addition, the course includes an intensive exposure to the tools of public relations, such as news releases, public service announcements, press conferences and photo cutlines. Practical publicity problems and experience involving all communication media are included.
Prerequisite(s): MCOM1131 or MCOM1132

MCS2230 Multicultural America 3 3/0/0
Meets MNTC Goal Area 7. This course is designed to offer future educators and citizens a perspective on the enculturation and formal education of four key groups within the larger United States society: African Americans, American Indians, Asian Americans and Latinos. A number of themes, such as identity, coming of age and the value of tradition, will be explored with relation to these groups. Particular attention is given to how one learns to belong to a culture (enculturation) and how this may differ from assimilation as experienced in formal and informal systems of schooling. The readings for this course are chosen to provide a context for understanding these experiences both through texts, by having members of multicultural America speak for themselves and through service learning experiences.
Prerequisite(s): none

MCS2231 Multicultural America: Service Learning 1 1/0/0
The service learning will be attached to MCS 2230, Multicultural America, as a required credit for students. The goals and structure of the service learning experience will include reflection from the perspective of future educators and citizens. Students, in collaboration with faculty, will participate in a service learning experience at an educational setting with diverse audiences and age groups, dependent on the M State student's teacher licensure or area of interest. Students may document their service learning through their written lesson plans, their presentation, journal writing, discussions and logs. This experience will emphasize key theories presented in Multicultural America. The nature of the service learning necessitates that students be prepared to be off-campus and to participate outside of regular class hours (20-25 hours). Students may need transportation to service learning sites.
Prerequisite(s): Concurrent enrollment in MCS2230

METC1112 Manufacturing Processes 4 2/2/0
This course will teach the fundamentals of traditional and non-traditional manufacturing processes including mass reducing, mass conserving, joining, material treatment and surface treatment processes. Hands-on experiences in laboratories provide class participants with basic skills in machining, welding and wood processing technologies.
Prerequisite(s): None

METC1114 Engineering Drawings/CAD I 3 2/1/0
This course will teach the fundamentals of technical drawing including design processes, geometric construction, multi-view projection, dimensioning and sectional views. Integral to this course is the use of Computer-Aided Drawing CAD in both 2D and 3D modes emphasizing visualization concepts.
Prerequisite(s): CPTR1104, MATH0090

METC1116 Engineering Drawings/CAD II 3 2/1/0
A continuation of METC114. This course will teach the fundamentals of technical drawing including auxiliary views, screws, fasteners, gears, cams, geometric dimensioning and tolerancing, assembly and working drawings. Integral to this course is the use of Computer-Aided Drawing CAD in both 2D and 3D modes emphasizing visualization concepts.
Prerequisite(s): METC1114, CPTR1104

METC1118 Manufacturing Basics 1 1/0/0
This course will provide an overview of the secondary processes used within the world of manufacturing including forming, separating, assembly, finishing operations and manufacturing economics. Hands-on experiences in laboratories provide class participants with basic skills in material handling and metal/wood separating and forming technologies.
Prerequisite(s): None

METC1120 Blueprint Reading/Measure 1 1/0/0
This course will teach the fundamentals of blueprint reading and precision measurement. Emphasis is placed on understanding and applying the information available from manufacturing blueprints to the use of appropriate measurement tools.
Prerequisite(s): None

METC1122 Intro Mechanical Sys 1 1/0/0
This course will provide an overview of the operation, maintenance and repair of basic mechanical system components. The terminology, theory, application and construction of mechanical components found within the typical factory will be discussed. The course is designed to provide a better understanding of the basic physics principles that govern mechanical power transmission.
Prerequisite(s): None

METC1124 Overview Fluid Power 1 1/0/0
This course will provide an overview of the operation, maintenance and repair of hydraulic and pneumatic system components. The terminology, theory, application and construction of fluid power components found within the typical factory will be discussed. The course is designed to provide a better understanding of the basic physics principles that govern fluid power.
Prerequisite(s): None

METC1126 Basic CNC Operations 1 1/0/0
This course will provide an overview of the basic concepts required in CNC programming and operations. The course will teach the fundamentals of computer numerical controlled equipment, basic programming methods and interpretation of the machining codes used in the controllers of machines within manufacturing plants.
Prerequisite(s): None

METC1128 Applied CNC Operations 1 0/1/0
This course will provide an overview of the basic applications of CNC programming and operations. The course will teach the operating fundamentals of computer numerical controlled equipment, basic programming methods and interpretation of the machining codes used in the controllers of the machines within manufacturing plants.
Prerequisite(s): METC1126

METC1130 Basic Elec Concepts 1 0/1/0
This course covers key electrical safety and test instrument concepts. Participants acquire foundational knowledge about electricity, circuit calculations, magnetism and power factors. Avoiding personal injury and equipment damage is emphasized. Students will learn to evaluate series and parallel circuits using Ohm's Law, evaluate magnetic field paths in magnetic circuits, understand and evaluate power factors, use safe electrical practices, use test equipment and recognize common electrical symbols.
Prerequisite(s): None

METC1132 Overview PLCs 1 1/0/0
This course will provide an overview of the operation, function and programming of a PLC and its system components. The terminology, theory, application and construction of a PLC and components found within the typical factory will be discussed. The course is designed to provide a better understanding of the PLC networks used in manufacturing.
Prerequisite(s): None

METC1134 Applied Basic PLCs 1 0/1/0
This course will provide students the opportunity to perform the operations involved with the functions and programming of a PLC and its system components. The application and construction of a PLC system and its components found within the typical factory will be simulated. The course is designed to provide a better understanding of the PLC networks used in manufacturing.
Prerequisite(s): METC1132

METC1140 Basic Robotic Prin 1 1/0/0
This class presents an introduction to the principles of robotics advancing to the types of power supplies and movement systems used in automated applications. The class includes discussion of sensing systems and end-of-arm tooling and how these correlate with the controller unit. Emphasis is placed on PLCs as well as an introduction to interfacing and vision systems used in robotics.
Prerequisite(s): METC1124, METC1132

METC1152 Safety and Accident Prevent 3 3/0/0
This course is designed to explore the principles and practices of health and safety in the industrial environment. Topics covered include regulations of the Environmental Protection Agency (EPA), the Occupational Safety and Health Act (OSHA) and MNOSHA, legal considerations, current legislation, product safety, hazard materials, infection control and employee protection.
Prerequisite(s): None

METC2202 Power Trans and Mech Sys 3 2/1/0
This course covers the transfer of power and the related mechanical systems typically employed to accomplish power transfer. Topics will include basic units of power measurements, HP / speed / torque calculations, control systems, bearings, belt and belt drives, gear and gear drives, chains and chain drives, adjustable speed drives, hydraulic drives, pneumatic drives, electric motors, internal combustion engines, clutches, couplings, u-joints, conveyors and brakes.
Prerequisite(s): MATH0090

METC2208 Basic Elec/Electronics 3 2/1/0
This course surveys the fundamentals of electricity and electronics including electrical/electronic components, AC/DC circuits, electronic devices and applications, basic electronic circuits and electronic communication and data systems.
Prerequisite(s): None

METC2210 Electro-Mech and Indus Cntrl 3 2/1/0
This course covers the electro-mechanical components, circuits and systems used to control and provide industrial automation. Components such as relays, timers, motors, switches and valves will be covered. The course also covers both 3-phase and single-phase industrial power distribution and how it is used in conjunction with industrial automation.
Prerequisite(s): None

METC2216 CAM/CNC 3 2/1/0
This course will teach the fundamentals of computer-aided manufacturing (CAM) and its use with computer numerical control (CNC) machines and computer-aided design (CAD) software. Participants will perform a series of hands-on activities where they will learn to take drawings developed with CAD software and generate programs that can be run on CNC machines. Participants will learn various methods of testing, including program simulation.
Prerequisite(s): METC1112, CADD1102, or similar engineering graphics and AutoCAD courses

METC2220 Hydraulic Systems 3 2/1/0
This course covers both hydraulic theory and application as it relates to components, circuits and systems. Both mobile and industrial hydraulics will be covered, comparing similarities and differences. Throughout the course students will confirm their circuit designs with mathematical calculations and then confirm their calculations by building and testing their circuits.
Prerequisite(s): MATH0090

METC2222 Fluid Power Systems 3 2/1/0
This course teaches fundamental skills in hydraulic and pneumatic systems. Participants will perform hands-on experiments where they construct circuits that teach the operation of components and circuits as used in real-world applications. At the completion of this course, participants will be able to install, start up and operate basic systems.
Prerequisite(s): CPTR1104, MATH0090

METC2224 Electricity and Electronics 4 2/2/0
This course surveys fundamentals of electricity and electronics including AC/DC circuits, electronic devices and applications, basic electronic circuits and electronic communication and data systems.
Prerequisite(s): MATH0090, PHYS1105

METC2226 Jig and Fixture Dsgn for Mfg 3 2/1/0
This entry-level course covers jigs and fixtures used in manufacturing. It introduces the student to the theory of jigs and fixtures as well as exposing the student to the application of jigs and fixtures. The course will be delivered through lecture, research, hands-on demonstrations, assigned homework and actual design of general jig and fixture solutions. Student will do design work using CAD.
Pre/Corequisite(s): CADD1102 or similar drafting course or by instructor approval

METC2228 Pneumatic Systems 3 2/1/0
This course covers both pneumatic theory and application as it relates to components, circuits and systems. Both mobile and industrial pneumatics will be covered, comparing similarities and differences. Throughout the course students will confirm their circuit designs with mathematical calculations and then confirm their calculations by building and testing their circuits.
Prerequisite(s): MATH0090

METC2230 Setup Reduction: The SMED Sys 2 2/0/0
This course covers the fundamental information needed for implementing the Single-Minute Exchange of Die (SMED) to changeover setup reduction. Changeover is the processes of setting up a production line for a different process or product.
Prerequisite(s): METC1112, MATH0090

METC2232 Mistake Proofing: The ZQC Sys 2 2/0/0
This course covers the fundamental information needed for implementing mistake-proofing approaches that prevent defects by monitoring processing conditions at the source and correcting errors that would cause defects.
Prerequisite(s): METC1112, MATH0090

METC2234 Wrkplc Productivity and Organization 2 2/0/0
This course will teach productivity improvements through the analysis of principles and practices that make the physical workplace safer, cleaner and more pleasant.
Prerequisite(s): METC1112, MATH0090

METC2236 Quality Planning and Mgmt 3 3/0/0
This is an introductory course which will cover approaches to maintenance that optimize equipment effectiveness, eliminate breakdowns and promote autonomous operator maintenance through day-to-day activities involving the total workforce.
Prerequisite(s): METC1112

METC2238 Production and Inventory Mgmt 2 2/0/0
This course will provide a basic understanding of production and inventory management including purchasing, inventory, production and distribution processes. Upon completion of this course, the participant will be able to interact effectively within a materials management system.
Prerequisite(s): CPTR1104, MATH0090

METC2242 Spec Topics Manufacturing 3 3/0/0
This course provides participants with opportunities to explore and/or practice specific areas of interest related to manufacturing technologies and supervision. Special topic areas to be selected fall under three broad categories: manufacturing processes and design technologies; systems and components for industrial automation; and management and productivity improvement.
Prerequisite(s): Approval of topics selected by the participant

METC2252 Production/Operations Mgmt 3 3/0/0
The operations function produces the goods and/or services that the organization offers to the marketplace. This course covers the decision areas that contribute to operation effectiveness, including the areas of process design, quality, workplace design and production/inventory management.
Prerequisite(s): MATH0090, CPTR1104

METC2254 Quality Measurement and Control 3 2/1/0
This course will teach the fundamentals of quality measurement and control. Course includes precision measurement tools and techniques and statistical process control (SPC). An introduction to total quality management topics is included in the course.
Prerequisite(s): METC1112

METC2256 Programmable Logic Cntrl 4 2/2/0
This course covers Programmable Logic Controllers (PLC). The course is intended to be an entry level through intermediate level course. The course will provide a complete introduction to the topic of PLCs, the theory of PLC operation, application of PLC configurations, developing ladder diagrams, programming PLCs using computer software, running PLC programs, editing and modifying existing programs, wiring and operating industrial components and feedback devices with PLCs and creating customary documentation for PLC with CAD and word processors.
Prerequisite(s): METC2210

METC2260 Project Management 3 3/0/0
This course will teach the fundamentals of project management. Major areas will be project initiation, tracking, reporting and closure. At the completion of this course, participants will be able to apply their skills to the management of projects in different work environments.
Prerequisite(s): None

METC2270 Manufacturing Internship 3 0/0/3
This course provides participants with on-the-job opportunities to explore and/or practice specific areas of interest related to manufacturing technologies and supervision. Internship opportunities fall under three broad categories: manufacturing processes and design technologies; systems and components for industrial automation; and management and productivity improvement.
Prerequisite(s): Approval of plans developed by the participant

MKTG1100 Prin of Marketing 3 3/0/0
This course introduces students to the dynamic field of marketing. This course is a comprehensive study of the traditional marketing principles and concepts and their application to a changing business world.
Prerequisite(s): None

MKTG1106 Professional Selling 3 3/0/0
This course covers a fundamental sales approach that can be used as a foundation for future sales courses. The content covers steps used to plan a sales presentation and methods of determining and filling prospect needs or wants.
Prerequisite(s): None

MKTG1110 Customer Service 3 3/0/0
Customer service can determine both a company's and an employee's success or failure. This course covers the skills necessary for an individual to build and maintain customer loyalty. Strategies needed to sustain a positive work environment will be identified. Evaluating and improving customer service systems, from traditional customer satisfaction measurement tools to technology-based customer relationship management systems (CRM), will be explored.
Prerequisite(s): None

MKTG1112 Retail Management 3 3/0/0
Class emphasis is on the strategic decisions made by retailers and how those decisions impact how, when, where and in what quantities customers will buy. Emphasis is also on hands-on application of the theories and principles introduced in class. Topics include using professional retailing terminology, analyzing environmental influences and identifying how retailers can appropriately respond to those influences as they make operational decisions such as site selection, determining merchandising practices, managing inventory and determining pricing strategies.
Prerequisite(s): None

MKTG1116 Advertising and Promotion 3 3/0/0
This course focuses on the role of promotion within the marketing plan of an organization. Students will study advertising trends that influence an organization's promotional strategy. Emphasis will be placed on current advertising media, costs, budgeting, ad development and evaluation. This course will have an active learning environment. Students will create and present a promotional campaign.
Prerequisite(s): None

MKTG1120 Supervisory Leadership 3 3/0/0
The methods and techniques of leadership and supervision and their applications are emphasized in this course. The content covers such topics as delegation, motivation, training, orienting, evaluating and effectively increasing productivity.
Prerequisite(s): None

MKTG1128 Business Insights 1 0/1/0
Examination of the marketing industry from manufacturing to the final product is covered in this course. Students analyze the impact of current trends, the economy and technology in the marketplace.
Prerequisite(s): None

MKTG1130 Leadership Ethics 3 3/0/0
This course is designed to help the individual determine what constitutes ethical issues and to gain insight into how to cope with conflicts between your personal values and those of the organization in which you work.
Prerequisite(s): None

MKTG1138 Leadership Development I 1 0/1/0
This course encourages the personal and professional growth of the student. Emphasis is placed on the development of skills in decision making, problem solving, communications, professionalism and leadership.
Prerequisite(s): None

MKTG1140 Leadership Development II 1 0/1/0
This course covers the personal and professional growth of the student. Emphasis is placed on the usage of skills in decision making, problem solving, communications and leadership.
Prerequisite(s): None

MKTG2200 Prin of Management 3 3/0/0
This course is designed to expose the student to a variety of concepts presented within the framework of the traditional functions of management. The various approaches to planning, decision making, organizing, motivation, leadership, communications and controlling are explored.
Prerequisite(s): None

MKTG2204 Advanced Professional Selling 3 2/1/0
This course provides opportunity for the student to apply the steps of a sales presentation by planning and performing sales presentations in role-playing situations. The student applies strategies in sales communications, customer oriented selling and sales management.
Prerequisite(s): MKTG1106

MKTG2206 Sales Management 3 2/1/0
This is an advanced management course that focuses on sales force planning, implementation and control. This course covers the managerial topics of sales planning, staffing, training and directing, as well as analyzing and evaluating the sales force.
Prerequisite(s): MKTG1106

MKTG2214 E-Marketing 3 3/0/0
This course examines emerging electronic technologies and their impact on a firm's marketing strategy. Emphasis is placed on trends in e-marketing as well as the unique opportunities and challenges faced in the electronic environment. Students will apply the components of the traditional marketing mix to an electronic marketing strategy.
Prerequisite(s): MKTG1100

MKTG2222 Human Resource Mgmt 3 3/0/0
The purpose of this course is to acquaint the student with the importance of human resource management in contributing to the achievement of an organization's objectives. The content addresses techniques and legal aspects of recruiting, hiring, firing, promotion, documentation, evaluation and other areas essential to the personnel function.
Prerequisite(s): None

MKTG2230 Marketing Research 3 2/1/0
This course covers market research principles and procedures that are necessary for marketing professionals to be successful. Topics covered include survey methods and techniques, problem identification, data collection techniques, sample type and size, presentation of findings and using the internet as a source.
Prerequisite(s): None

MKTG2234 Computer Marketing Applications 3 2/1/0
This course challenges students to produce computer projects using spreadsheets, databases, graphics and word processing. The emphasis is on documents produced by marketing departments and marketing firms. The student plans, creates, prints and evaluates projects individually and with a team.
Prerequisite(s): None

MKTG2236 Small Business Mgmt 3 3/0/0
This course provides a summary of many of the major issues faced by anyone starting a small business.
Prerequisite(s): ACCT1012

MKTG2238 Leadership Development III 1 0/1/0
This course covers the personal and professional growth of the student. Emphasis is on the use of skills in decision making, problem solving, communication and leadership.
Prerequisite(s): None

MKTG2240 Leadership Development IV 1 0/1/0
This course focuses on the personal and professional growth of the student. Emphasis is on the use of skills in decision making, problem solving, communications and leadership.
Prerequisite(s): None

MKTG2250 Strategic Selling and Account Management 3 2/1/0
This is an advanced sales course designed to explore and apply proven business practices currently being used in the field by sales professionals. Its focus is business-to-business, face-to-face personal selling. Key elements include strategic planning to prepare for sales calls, make sales calls and communicate proposed solutions, overcome objections and close sales. Other elements include understanding organizational structures, business-to-business buying behavior and understanding and influencing multiple decision makers.
Prerequisite(s): MKTG1106, MKTG2204

MKTG2289 Supervised Occup Exp 1 0/0/1
For this course, projects, reports and discussions are coordinated to relate to the student's employment situation. Employment in an approved industry site, training verification and evaluation are required of each student.
Prerequisite(s): Instructor approval

MKTG2290 Supervised Occup Exp I 3 0/0/3
For this course, projects, reports and discussions are coordinated to relate to the student's employment situation. Employment in an approved wholesale/retail marketing occupation, training verification and evaluation are required of each student. A maximum of 9 SOE credits will apply toward graduation.
Prerequisite(s): 15 credits completed

MKTG2292 Supervised Occup Exp II 3 0/0/3
For this course, projects, reports and discussions are coordinated to relate to the student's employment situation. Employment in an approved wholesale/retail marketing occupation, training verification and evaluation are required of each student. A maximum of 9 SOE credits will apply toward graduation.
Prerequisite(s): 15 credits completed

MKTG2298 Small Business Plan Development 2 1/1/0
This course covers the steps in preparing a business plan. Each student creates a business plan based on a personal business selection.
Prerequisite(s): MKTG2236 recommended

MKTG2400 Marketing Management 4 3/1/0
Class emphasis is on the strategic decisions made by retailers and how those decisions impact how, when, where and in what quantities customers will buy. Emphasis is also on hands-on application of the theories and principles introduced in class. Topics include using professional retailing terminology, analyzing environmental influences and identifying how retailers can appropriately respond to those influences as they make operational decisions such as site selection, determining merchandising practices, managing inventory and determining pricing strategies.
Prerequisite(s): MKTG1100, MKTG1116, MKTG2230

MKTG2404 Management Strategy 3 3/0/0
From a management perspective, students will study strategic management concepts and analytical techniques. Students will learn how to improve managerial decision-making by using a case study format to assess business opportunities and formulate effective strategies which will enhance the long-term performance of the organization. The course is intended to integrate previous program coursework. This capstone course should be taken during the student's final semester.
Prerequisite(s): ACCT1012, ACCT2211, MKTG1000, MKTG2200

MLT1110 Prin/Proc Phlebotomy 2 1/1/0
Course designed for Phlebotomy and Medical Laboratory Technician students. Competency required in the knowledge and performance of venipuncture, micro (capillary) and arterial blood and other body fluid collection, handling and storage. Strict adherence to the safety techniques for pathogens is stressed. Also included is point-of-care (bedside) analysis and electrocardiography.
Prerequisite(s): None

MLT1112 Clinical Phlebotomy 3 0/3/0
Provides clinical phlebotomy experience for the phlebotomy technician student in an affiliate hospital/clinic laboratory under the supervision of qualified technicians and technologists. Training in collection, processing and storage of blood and body fluid.
Prerequisite(s): ZOO1126

MLT2217 Clin Hematology 3 0/3/0
Clinical experience at an affiliate hospital laboratory under the supervision of qualified laboratory personnel. Students perform tests on the cells in blood and procedures for coagulation studies.
Prerequisite(s): ZOO1122

MLT2218 Clin Urinalysis 1 0/1/0
Clinical experience in performing routine and special urinalysis and seminal fluid testing under the supervision of laboratory personnel. Also clinical experience in special chemistry testing including hormones, vitamins, therapeutic drug monitoring and drugs of abuse with supervision.
Prerequisite(s): ZOO1126, CHEM1104

MLT2219 Clin Chemistry/Sp Chem 3 0/3/0
Clinical experience in the chemistry laboratory at affiliate hospital. Students learn to perform body chemistry methods on automated and semi-automated instruments under the supervision of qualified laboratory personnel.
Prerequisite(s): CHEM1104

MLT2220 Clin Blood Bank 2 0/2/0
Clinical experience in blood bank department of affiliate hospital. Students perform typing and compatibility testing and other routine testing with supervision.
Prerequisite(s): BIOL1125, ZOO1123

MLT2221 Clin Microbiology 3 0/3/0
Medical microbiology experience in bacterial identification methods with laboratory personnel supervision. Immunological and serological testing of body fluids also performed.
Prerequisite(s): BIOL2257

MLT2228 Clin Parasit/Mycol 1 0/1/0
Clinical experience in the special area of fungi, yeast and parasite identification under the supervision of laboratory personnel.
Prerequisite(s): BIOL2257

MLT2229 Phlebot/Review 1 0/1/0
Clinical experience for MLTs in phlebotomy techniques including blood specimen collection by venipuncture, capillary and arterial under supervision. Also collection, handling and storage of other body fluids. Review of all areas of the clinical laboratory. Review occurs during the scheduled period set aside and proctored by education coordinator to prepare students for the national certification exam following their clinical experience.
Prerequisite(s): MLT1110

MLT2230 Clinical Applications 1 1/0/0
Didactic course offered the second year of the MLT curriculum consisting of new information and pertinent information not covered during the first year or didactic instruction or during the clinical experience. Includes use of case studies, new methods and correlation of test results to disease/disorders.
Prerequisite(s): MLT technical courses

MRNT1104 Drive System Theory 3 3/0/0
This course covers the operational theory of stern-mounted vertical drives and outboard gearcases. Gear ratios, upper housings, lower housings, inputs and outputs will be investigated. Common drive systems from outboard and stem drive are covered. Identification, theory of disassembly, measurement, shimming and assembly procedures will be outlined. Failure analysis is emphasized.
Pre/Corequisite(s): MRNT1103

MRNT1105 Introduction to Marine 2 1/1/0
This course covers information on laws governing the use of public waterways as administered by both state and federal agencies as well as the National Marine Manufacturers Association regulations. Students will learn the history of marine systems along with the identification of each type. The course also covers the manufacturers service and parts literature used in operation of marine businesses, emphasizing the service departments.
Prerequisite(s): None

MRNT1106 Drive System Service I 3 0/3/0
This course teaches the repair procedures for the common stern-mounted vertical drive systems built by Outboard Marine, MerCruiser and Volvo and outboards built by Mercury Marine and OMC. Complete drive disassembly, measurement, analysis, shimming and rebuilding will be performed. Failure analysis of components will be covered in detail.
Pre/Corequisite(s): MRNT1103, MRNT1104

MRNT1110 Transom and Mid Section Service 3 1/2/0
This course teaches methods used to couple the engine to the vertical drive on stern-drive applications. On outboards, this course covers the mid-sections. Removal and replacement, failure analysis, measurement, disassembly and assembly procedures are performed.
Pre/Corequisite(s): MRNT1103

MRNT1114 Intro to Boat Rigging 2 1/1/0
This course provides training in the procedures necessary to prepare new boats for showroom and/or customer delivery. Motor mounting, controls, instrumentation and accessories are discussed. Students will perform rigging and adjustment procedures on boats and trailers.
Prerequisite(s): None

MRNT1119 Marine Starting and Charging Systems - Theory 1 1/0/0
This course teaches the service procedures necessary on marine products (2-cycle/4-cycle, inboard and outboard motors) to repair charging and starting system components. Electrical principles are applied to test and troubleshoot complete circuits as well as components of each. Fundamental rebuilding principles and system analysis are emphasized. Safe battery testing and service are performed on marine products. The differences between automotive and marine safety features will be demonstrated. This course is to be taken with MRNT1116.
Prerequisite(s): None

Course #	CourseTitle	CR	Lec/Lab/OJT

MRNT1121 Marine Starting and Charging Systems 2 1/1/0
This course teaches the service procedures necessary on marine products (2-cycle/4-cycle, inboard and outboard motors) to repair charging and starting system components. Electrical principles are applied to test and troubleshoot complete circuits as well as components of each. Fundamental rebuilding principles and system analysis are emphasized. Safe battery testing and service are performed on marine products. Differences between automotive and marine safety features will be illustrated.
Prerequisite(s): None

MRNT1122 Small Outboard Fuel Systems 2 1/1/0
This course covers many types of carburetors used on 50 horse and smaller two-cycle outboards. Engine pre-delivery inspection and service will be outlined, along with seasonal service requirements. Some fuel system diagnostics will be incorporated in this course.
Pre/Corequisite(s): MRNT1103

MRNT1124 Small Outboard Electrical Systems 3 1/2/0
This course introduces marine small two-cycle outboard fundamentals of electrical systems. The systems will include the ignition and electrical accessories. The students will learn the operating theories of the different styles of ignition magnetic induction, AC and DC circuits and electrical control systems. The highly technical ignition and electronic systems are studied, along with repair procedures of components of the systems. Emphasis will be on use of test equipment and system operation to develop troubleshooting procedures. Engine pre-delivery inspection and service will be outlined, along with seasonal service requirements.
Pre/Corequisites(s): MRNT1103, TRNS1104, MRNT1103, TRNS1104

MRNT2202 Marine Fuel Systems 6 3/3/0
This course covers the many types of carburetors used on current 2- and 4-cycle marine products. Training will be on all horsepower ranges, outboard and stern drive. The incorporation of the oil injection is studied along with the associated fuel system parts. Engine predelivery, inspection and service will be outlined, along with seasonal service requirements. System troubleshooting will be stressed.
Pre/Corequisites(s): MRNT1103, TRNS1102

MRNT2203 Marine Advanced Fuel Systems 4 2/2/0
This course covers the many types of fuel systems used on current 2- and 4-cycle higher-end marine products. Most training will be on horsepower ranges above 70hp in outboard and stern-drive engines. The main focus is on larger carbureted and fuel injection systems, along with fuel distribution and associated parts of those systems.
Prerequisite(s): None

MRNT2204 Marine Electrical Systems 6 3/3/0
This course introduces electrical systems used on marine equipment, focusing primarily on ignition and electrical accessories. The students will learn the theories of ignitions, induction, AC and DC circuits and electronic and computer controls. Emphasis will be on use of test equipment and system operation to develop troubleshooting procedures.
Pre/Corequisite(s): MRNT1103, TRNS1104

MRNT2206 EFI Systems 3 1/2/0
This course teaches the theory of operation and service of the electronic fuel injection (EFI) systems used on stern drive and outboard applications. Engine predelivery inspection and service will be outlined, along with seasonal service, engine preparation and inspection. Incorporated are 2-cycle oil injection systems. Students will focus on diagnostic procedures and step-by-step troubleshooting procedures.
Pre/Corequisites(s): MRNT2202, TRNS1104

MRNT2207 EFI and Advanced Electrical Systems 4 2/2/0
This course teaches the theory of operation and service of the EFI/DFI (electronic fuel injection/direct fuel injection) systems used on stern drive and outboard applications. The student will also gain a strong grasp on high-tech ignition systems and propulsion control. Engine service will be outlined, along with seasonal service, engine preparation and inspection. Students will also focus on diagnostic procedures to increase their troubleshooting skills with the aid of laptops and scan tools.
Prerequisite(s): None

MRNT2208 Engine Condition Diagnosis 2 1/1/0
This course teaches the marine engine diagnosis procedures using various types of test equipment and analysis of data as compared to manufacturer specifications. Use of tools, equipment and marine service manuals are emphasized.
Pre/Corequisite(s): TRNS1102

MRNT2210 Engine Service 3 1/2/0
This course teaches the fundamentals of 2- and 4-cycle engine operation and service. Instruction in this course will include cooling and lubrication systems. engine construction, fuel/air intake systems, exhaust systems and internal engineering features. Students will perform basic engine component analysis and replacement procedures in this lab.
Pre/Corequisites(s): MRNT1103, TRNS1102

MRNT2212 Performance Testing 1 1/0/0
This course will provide instruction in boat performance improvement. Students will study propeller construction and applications. Performance analysis for dynamometer testing and test wheels will be emphasized. Students will conduct performance tests of varied marine products.
Pre/Corequisites(s): MRNT2204, MRNT2206

MRNT2214 Marine Internship 3 0/0/3
This course is designed to provide the student with a purposeful occupational experience in the marine field. Each internship is an individualized experience. A training plan is created for each student in conjunction with the employer to provide experience related to the skills and knowledge acquired in the student's training program. Procedures necessary for new boat preparation, motor mounting, accessories, controls and instrumentation are practiced at the internship site. Additional skills from completed courses will be included in the training plan.
Prerequisite(s): Instructor approval

MRNT2218 Adv Electrical Diagnosis 3 1/2/0
This course covers the highly technical electrical system used on higher horsepower marine products. Student will perform adjustments and normal service procedures on live units. System troubleshooting procedures will be stressed.
Pre/Corequisite(s): MRNT2204

MRNT2220 Marine Shop Management 2 2/0/0
This course teaches students proper shop management procedures including parts ordering, inventory, repair order writing, payroll, employee-employer relations, customer relations and communication skills, sales and service in the service center, warranty procedures on marine products, computerized parts/billing systems and waste management procedures.
Pre/Corequisite(s): TRNS1102

MRNT2221 Advanced Drive Systems and Testing 4 2/2/0
This course teaches the service procedures for advanced technology drive systems used in stern-mounted vertical drives. Dual propeller drive systems, high-speed designs and heavy-duty drive systems will be covered. Complete disassembly, measurement, analysis, shimming and rebuilding procedures will be taught and performed.
Prerequisite(s): None

MRNT2222 Transom and Mid-Section Service 4 2/2/0
This course teaches the various methods used to couple the engine to the vertical drive on stern-drive application. On outboards this course covers the mid-sections. Removal and replacement, failure analysis, measurements, disassembly and assembly procedures are performed.
Prerequisite(s): None

MRNT2224 Marine Indep Study Lab I 1 0/1/0
This course is designed by the student and the instructor to provide an opportunity for the student to gain proficiency in selected competency areas and integrate the skills, knowledge and concepts gained in previous coursework. The student, with instructor approval, will prepare a lab activity plan consistent with 32 hours of lab time. The plan should reflect the following course goals, student knowledge, prior coursework and student skill level. The student will complete a daily activity lab worksheet that will represent work completed and prepare a lab activities outcomes worksheet to determine student efforts and success at completing the lab activity plan and the course.
Pre/Corequisite(s): MRNT1103

MRNT2226 Advanced Drive System 2 1/1/0
This course teaches the service procedures for advanced technology drive systems used in stern-mounted vertical drives. Dual-propeller drive systems, high-speed designs and heavy-duty drive systems will be covered. Complete disassembly, measurement, analysis, shimming and rebuilding procedures will be taught and performed.
Prerequisite(s): MRNT1104, MRNT1106

MRNT2231 Engine Performance Rebuild and Diagnosics 5 2/3/0
This course teaches the theory of operation and service of the EFI/DFI (electronic fuel injection/direct fuel injection) systems used on stern-drive and outboard applications. The student will also gain a strong grasp of high-tech ignition systems and propulsion control. Engine service will be outlined along with seasonal service, engine preparation and inspection. Students will also focus on diagnostic procedures to increase their troubleshooting skills with the aid of laptops and scan tools.
Prerequisite(s): None

MRNT2232 Marine Indep Study Lab II 1 0/1/0
This course is designed by the student and the instructor to provide an opportunity for the student to gain proficiency in selected competency areas and integrate the skills, knowledge and concepts gained in previous coursework. The student, with instructor approval, will prepare a lab activity plan consistent with 32 hours of lab time. The plan should reflect the following course goals, student knowledge, prior coursework and student skill level. The student will complete a daily activity lab worksheet that will represent work completed and prepare a lab activities outcome worksheet to determine student efforts and success at completing the lab activity plan and the course.
Pre/Corequisite(s): MRNT1103

MRNT2236 Boat Reconditioning 2 1/1/0
This course teaches the basic introduction to boat repair, steering and electrical systems, along with floor and hull repair. Student will learn the proper procedures to safely repair a boat hull or its internal systems.
Prerequisite(s): None

MRNT2238 Marine 4-Stroke Outboard Engine Srvc 2 1/1/0
This course covers the areas dealing with the tuning, maintenance, diagnosis and adjustment of the 4-stroke outboard engine. Training will include multiple brands of 4-stroke engines and their related components.
Pre/Corequisite(s): MRNT2204

MUSC1111 Fundamentals of Music 3 3/0/0
Meets MNTC Goal Area 6. Fundamentals of music and music notation with skills developed through listening, writing music and in-class performances. Assumes no previous training in music.
Prerequisite(s): None

MUSC1112 Beg Class Guitar 1 1/0/0
Meets MNTC Goal Area 6F. Student will progress in the skills of reading and realizing guitar scores by studying a variety of music styles and guitar techniques. The student will understand those works as expressions of composers who created within particular style periods. Student will interpret music using the stylistic conventions and techniques of the period. Student will express their own musical ideas within the framework of the printed score. Student will articulate their observations and ideas about music using appropriate musical language.
Prerequisite(s): None

MUSC1113 Beg Class Voice 1 1/0/0
Meets MNTC Goal Area 6F. Class instruction in the healthy use of the voice in singing and speaking. Practical application of vocal techniques. Recommended for beginning voice students, for non-signers who would like to learn to sing or for anyone who uses his/her voice, especially for music, theatre, speech, speech therapy and elementary education majors. A maximum of two semesters may be taken for a credit.
Prerequisite(s): None

MUSC1114 Beg Class Piano 2 2/0/0
Meets MNTC Goal Area 6F. Group piano lessons. Designed for students with no piano experience. Includes emphasis on solo and ensemble playing as well as improvisation, technique and theory. No additional fee.
Prerequisite(s): None

MUSC1115 Exploring our American Musical Heritage 3 3/0/0
Meets MNTC Goal Areas 6 and 7. A survey course for the general college student introducing the elements, structural designs and historical styles of music. Emphasis is placed on expansion of listening skills, musical experiences, field research and cultural contexts of folk music.
Prerequisite(s): None

MUSC1116 The World of Music 3 3/0/0
Meets MNTC Goal Areas 6 and 8. A survey course for the general college student introducing the elements, structural designs and historical styles of music. Emphasis is placed on expansion of listening skills and musical experiences with music of the Western notated tradition (classical music).
Prerequisite(s): None

MUSC1118 Rock and Pop Music 3 3/0/0
Meets MNTC Goal Area 6. This survey of rock and pop music for all students provides a comprehensive history of pop music in the United States from its origins to the current sounds of today. Emphasis is placed on the music itself through analysis and critique and covers all styles of rock and pop music from R and B to metal to rap and beyond.
Prerequisite(s): None

MUSC1120 Introduction to Music Technology 3 3/0/0
Meets MNTC Goal Area 6. This course introduces the principal topics of music technology: acoustics, computers, MIDI, digital audio and tools for music production and scoring. Hands-on experience will be used extensively to enhance understanding. This course will serve as a springboard to further study and exploration of hardware and software tools for music creation.
Prerequisite(s): None

MUSC1121 Basic Theory and Musicianship I 3 3/0/0
Meets MNTC Goal Areas 2 and 6. Basic approaches to the study of music in the Western notated tradition from the 17th century to the present day. Clarifies the fundamental musical elements of melody, harmony, rhythm and form, with emphasis in the tonic-dominant harmony. Involves analysis and composition.
Pre/Corequisite(s): Ability to read music, must be taken concurrently with MUSC1123

MUSC1122 Basic Theory and Musicianship II 3 3/0/0
Meets MNTC Goal Areas 2 and 6. Basic approaches to the study of music in the Western notated tradition as the organization and interaction of musical elements: melody, harmony, rhythm, form and color, with emphasis in the tonic-dominant harmony. Involves analysis and composition.
Pre/Corequisite(s): MUSC1121, must be taken concurrently with MUSC1124

MUSC1123 Sight Singing and Ear Training I 1 1/0/0
Meets MNTC Goal Area 6F. Course is designed to improve skills in two areas: to recognize and notate tonal melodies and rhythmic patterns and to reproduce "at sight" what is notated.
Pre/Corequisite(s): Ability to read and hear music, must be taken concurrently with Musc 1121

MUSC1124 Sight Singing and Ear Training II 1 1/0/0
Meets MNTC Goal Area 6F. Course is designed to improve skills in two areas: to recognize and notate tonal melodies and rhythmic patterns and to reproduce "at sight" what is notated.
Pre/Corequisite(s): Ability to read and hear music, must be taken concurrently with Musc 1122

MUSC1135 Voice Ensemble 1 1/0/0
Meets MNTC Goal Area 6F. The voice ensemble is an auditioned choir (from the M State Concert Choir) meeting two hours per week on a regularly scheduled basis. This group studies and prepares music from various musical periods and geographic regions and performs a minimum of two concerts each semester. This group also participates in campus life venues as they arise, the MCC Fine Arts Festival and occasional area tours. May be repeated for credit.
Prerequisite(s): MUSC1141

MUSC1141 Concert Choir 1 1/0/0
Meets MNTC Goal Area 6F. The M State choir is a non-auditioned group that meets four times per week on a regularly scheduled basis. The group will study and prepare music from various musical periods and geographic regions and perform a minimum of one concert each semester. The group will also participate in campus life venues as they arise, the MCC Fine Arts Festival and occasional area tours.
Prerequisite(s): None

MUSC1145 Area Chorale 1 1/0/0
Meets MNTC Goal Area 6F. The M State Chamber Chorale is an auditioned community chorus that performs one concert of choral/orchestral music each semester. The group meets one evening per week on a regularly scheduled basis. May be repeated for credit.
Prerequisite(s): None

MUSC1150 History of Jazz 3 3/0/0
Meets MNTC Goal Area 6. This survey of the history of jazz music for all students provides a comprehensive history of jazz music in the United States from its origins to the current sounds of today. Emphasis is placed on the music itself through analysis and critique and covers all styles of jazz music from the birth of the blues, ragtime to today.
Prerequisite(s): None

MUSC1151 Ind Voice Lessons 1 1/0/0
Meets MNTC Goal Area 6F. Students interested in individual voice lessons should contact the music department so that instruction can be arranged. Additional fee. May be repeated for credit.
Prerequisite(s): Instructor approval

MUSC1162 Jazz Ensemble 1 1/0/0
Meets MNTC Goal Area 6F. The Jazz Ensemble meets on a weekly basis, studies and prepares music in the various styles of jazz and performs one concert each semester. Special emphasis will be given to jazz improvisation as an integral part of this music. Enrollment is open to any instrumentalist at the discretion of the instructor. May be repeated for credit.
Prerequisite(s): Instructor approval

MUSC1164 Concert Band 1 1/0/0
Meets MNTC Goal Area 6F. The M State Concert Band is an instrumental group that meets three times per week on a regularly scheduled basis. The group will study and prepare music from a wide range composers and styles and perform a minimum of one concert each semester. This ensemble will participate in campus life venues, festivals and occasional area tours. Small ensemble performances will also be included in this experience. May be repeated for credit.
Prerequisite(s): Ability to read and play written music on a band instrument; private study is recommended and encouraged

MUSC1168 Pep Band 1 1/0/0
Meets MNTC Goal Area 6F. The M State Pep Band is an instrumental group that meets two times per week on a regularly scheduled basis. The group will study and prepare music from a wide range of composers and styles and performs a minimum of one concert each semester. This ensemble will participate in sporting events, campus life venues and other events. May be repeated for credit.
Prerequisite(s): Ability to read and play written music on a band instrument

MUSC1181 Private Instrumental Lessons 1 1/0/0
Meets MNTC Goal Area 6F. Individual woodwind, brass, percussion, strings and guitar lessons. Subject to instructor availability. Students should contact the music department to arrange instruction. Additional fee. May be repeated for credit.
Prerequisite(s): Instructor approval

MUSC1185 Private Music Composition Lessons 1 1/0/0
Meets MnTC Goal 6. Individual music composition and advanced theory discussion and lessons. Subject to instructor availability. Students should contact the music department to arrange instruction. Additional fee. May be repeated for credit.
Prerequisite(s): Instructor approval

MUSC1191 Ind Piano Lessons 1 1/0/0
Meets MNTC Goal Area 6F. Individual piano lessons. Students should contact the music department to arrange instruction. Additional fee. May be repeated for credit.
Prerequisite(s): Instructor approval

MUSC2223 Sight Singing and Ear Training III 1 1/0/0
Meets MNTC Goal Area 6F. Course is designed to improve skills in two areas: to recognize and notate tonal melodies and rhythmic patterns and to reproduce "at sight" what is notated. Must be taken concurrently with MUSC 2221.
Prerequisite(s): Ability to read music; pre-college experience in applied music; MUSC1124

MUSC2224 Sight Singing and Ear Training IV 1 1/0/0
Meets MNTC Goal Area 6F. Course is designed to improve skills in two areas: to recognize and notate tonal melodies and rhythmic patterns and to reproduce "at sight" what is notated. Must be taken concurrently with MUSC 2222.
Prerequisite(s): Ability to read music; pre-college experience in applied music; MUSC2223

MUSC2231 Advanced Theory and Musicianship III 3 3/0/0
Meets MNTC Goal Areas 2 and 6. Continued study and application of concepts from Music 1121 and 1122, including functional harmony, basic style and form analysis, chromatic harmony and an introduction to 20th century harmonic practices. Comparisons of music from various stylistic periods. Beginning studies in counterpoint.
Prerequisite(s): MUSC1122 and MUSC1124

Course #	CourseTitle	CR	Lec/Lab/OJT

MUSC2232 Advanced Theory and Musicianship IV 3 3/0/0
Meets MNTC Goal Areas 2 and 6. Continued study and application of concepts from Music 1121 and 1122, including functional harmony, basic style and form analysis, chromatic harmony and an introduction to 20th century harmonic practices. Comparisons of music from various stylistic periods. Beginning studies in counterpoint.
Prerequisite(s): MUSC2231

MUSC2251 Individual Voice Lessons 2 2/0/0
Meets MNTC Goal Area 6F. Individual voice lessons of one hour per week. Open to advanced students with instructor's consent. Required of voice performance or voice pedagogy majors. Includes required performances. Students interested in this course should contact the music department so that instruction may be arranged. Additional fee. May be repeated for credit.
Prerequisite(s): Instructor approval

MUSC2281 Private Instrumental Lessons 2 2/0/0
Meets MNTC Goal Areas 2 and 6. Individual woodwind, brass, percussion and guitar lessons of one hour per week. Open to advanced students with instructor's consent. Required of instrumental performance or education majors. Includes required performances. Students should contact music department to arrange instruction. Additional fee. May be repeated for credit.
Prerequisite(s): MUSC2231

MUSC2285 Advanced Music Composition 2 2/0/0
Meets MnTC Goal 6. Individual advanced music composition and advanced theory discussion and lessons. Subject to instructor availability. Students should contact the music department to arrange instruction. Additional fee. May be repeated for credit.
Prerequisite(s): MUSC1185 and Instructor's approval

MUSC2291 Individual Piano Lessons 2 2/0/0
Meets MNTC Goal Area 6F. Individual piano lessons of one hour per week. Open to advanced students with instructor's consent. Required of piano performance or piano pedagogy majors. Includes additional studio classes and required performances at the instructor's discretion. Interested students should contact the music department to arrange instruction. Additional fee. May be repeated for credit.
Prerequisite(s): Instructor approval

NANO1101 Fundamentals of Nanoscience I 3 3/0/0
This is the first semester of a two-semester course sequence (NANO1101 and 1102) designed to expose students to the new and rapidly emerging fields of nanoscience and nanotechnology. It is designed to establish a basic understanding of the :
1. Underlying scientific basis for the behavior of nanomaterials
2. Scope of nanomaterials potential use in products manufactured by various industries
3. Methods of fabrication and characterization of nanomaterials.

Nanoscience is a field of scientific study which is cross disciplinary and encompasses the broad areas of chemistry, biology and physics, materials science and engineering. Nanoscience strives to understand the composition, structure, properties and behavior of the molecules and atoms which make up the material in our environment and newly created nano-materials. Nanotechnology is the purposeful design and production of a product at the nanoscale (or microscale) which has useful applications in our world.
Prerequisite(s): None

NANO1102 Fundamentals of Nanoscience II 3 3/0/0
This is the second semester of a two-semester course sequence (NANO 1101 and 1102) designed to expose students to the new and rapidly emerging fields of nanoscience and nanotechnology. It is designed to establish a basic understanding of the:
1. Characterization and analysis techniques utilized to study nanomaterials
2. Specific applications and examples of nanomaterials in the various industry areas.

Nanoscience is a field of scientific study which is cross disciplinary and encompasses the broad areas of chemistry, biology and physics, materials science and engineering. Nanoscience strives to understand the composition, structure, properties and behavior of the molecules and atoms which make up the material in our environment and newly created nanomaterials. Nanotechnology is the purposeful design and production of a product at the nanoscale (or microscale) which has useful applications in our world.
Prerequisite(s): None

NANO1197 Industry Internship Experience I 1 0/0/1
This is the first of three internships that students will experience. Each Industry Internship will continue to raise the level of exposure and hands-on activity to highly sensitive equipment in the nanoscience industry.

Industry Internship Experience I is a one-credit directed industry experience designed to acquaint students with the industry and research laboratory/production environment. Supervised tours and/or virtual tours of a variety of different laboratory/production facilities will be conducted as a single group or as smaller groups depending on space availability.
Pre/Corequisite(s): A minimum of a C grade or better in BIOL1111, CHEM1100 or NANO1101

NANO2205 Laboratory Instrumentation 6 0/6/0
This course is an intensive combined lab/lecture course designed to expose students to some of the more basic laboratory instrumentation, practices and applications utilized in research and industrial laboratory settings. Most, if not all, of the techniques covered have direct application in the new and rapidly emerging fields of nanoscience and nanotechnology. The course is broken up into six distinct modules, each focusing on specific skill sets critical to a laboratory technician in general. The course is designed to establish:
1. A basic understanding of theory behind, applications of and procedures utilized in the proper use of the technologies
2. Minimum levels of competency in the proper use and care of the equipment as well as the proper methods utilized in the recording, analysis and reporting of data.
Prerequisite(s): BIOL1111, CHEM1100 and PHYS1106; or the equivalent or higher coursework and consent of the instructor

NANO2207 Nanobiotechnology and Nanobiomedicine 3 2/1/0
This is a second-year nanotechnology course which is intended to expose students to the specific applications of nanotechnology in the biotechnology and biomedical areas of industry, research and development. The course will cover the technologies utilized in the fabrication and production of specific nanomaterials, their use or applications in the biotechnology and biomedical areas, future trends and societal, ethical and environmental implications of these technologies. It is intended to build on the introductory material covered in NANO 1101 and NANO 1102.
Prerequisite(s): A minimum of a "C" grade or better in NANO 1101 and 1102; CHEM1100; BIOL1111

NANO2208 Nanomaterials and Coatings 3 2/1/0
This is a second-year nanotechnology lecture course intended to expose students to the fundamentals of nanomaterials and coatings. The student will gain a basic understand of both organic and inorganic films, ranging from thin film properties to actual processing. Students will gain insight into the advantages of nanomaterials over bulk materials and how various industries are leveraging these properties. As nanotechnology is such a diverse field, examples will range from everyday applications (DVDs) to futuristic concepts (nanoparticles to cure diseases).
Prerequisite(s): A minimum of a C grade or better in NANO1101 and NANO1102

NANO2209 Thin Film Technology 3 2/1/0
This is a second-year nanotechnology lecture course designed to expose students to some of the more common thin-film processing and analysis techniques, specifically vacuum-based processing and analysis. The course will cover vacuum fundamentals and provide insight at the atomic level, where thin film technology truly resides.
Prerequisite(s): A minimum of a C grade or better in NANO1101 and NANO1102

NANO2210 Semiconductor Fabrication 3 2/1/0
The course focuses on the terminology, concepts, processes, products and equipment commonly used in the manufacturing of ultra-large-scale integrated (ULSI) semiconductors
Prerequisite(s): None

NANO2211 Manufacturing Quality Assurance 3 2/1/0
This capstone course is intended to link the analysis and characterization methods covered in previous courses with the process of automated manufacturing of a specified product. A semi-automated manufacturing process will be utilized as the focus on which students will apply analysis and characterization methods. From the statistically analyzed data generated by the characterization methods, the students will modify the manufacturing process to attain specific parameters of performance in the product. The course will deal with Instrument calibration, reliability, statistical process control (SPC), statistical quality control (SQC), trouble shooting and problem solving as it applies to the manufacturing process.
Pre/Corequisite(s): NANO2205, NANO2212

NANO2212 Surface and Thin Film Analysis Techniques 3 2/1/0
This is an intensive lecture course with hands-on analysis designed to expose students to some of the more common analysis techniques and the data-impact to nano-processing. Experimental data obtained by the student will provide direction to a "manufacturing" line and develop the nano-technician skill set from analysis to reporting to process impact. The course is designed to establish:
1. A basic understanding of theory behind, applications of and procedures utilized in the characterization of surfaces and thin films
2. Minimum levels of competency in the proper use and care of the equipment as well as the proper methods utilized in the recording, analysis and reporting of data.

Nanoscience is a field of scientific study which is cross disciplinary and encompasses the broad areas of chemistry, biology and physics, materials science and engineering. Nanoscience strives to understand the composition, structure, properties and behavior of the molecules and atoms, which make up the material in our environment and newly created nano-materials. Nanotechnology is the purposeful design and production of a product at the nanoscale (or microscale), which has useful applications in our world.
Pre/Corequisite(s): NANO2211 or higher coursework and consent of the instructor; minimum of a C grade in NANO2205

NANO2231 Industry Internship Experience II 2 0/0/2
This is a 2-credit directed industry experience designed to allow students to begin work with the industry and research laboratory/production partners. Students will spend time in different laboratory/production facilities to gain hands-on practical experience utilizing skill sets established previously in the program and to begin to develop new skill sets unique to each industry. Placement into internship experiences must be approved by both the program director and the Industry partner. Students may be required to sign non-disclosure agreements in order to participate.
Prerequisite(s): A minimum of a C grade or better in NANO2205

NANO2232 Industry Internship Experience III 5 0/0/5
This course serves as a capstone experience for the program. It is a 5-credit directed industry experience designed to allow students to more fully work with the industry and research laboratory/production partners to further develop necessary skill sets unique to each industry. Students will spend time in laboratory/production facilities of their choice. Placement into internship experiences must be approved by both the program director

and the Industry partner. Students may be required to sign non-disclosure agreements in order to participate.
Prerequisite(s): A minimum of a C grade or better in NANO2205

NURS1400 Introduction to Professional Nursing 2 2/0/0
This course will introduce the student to the concepts of professional nursing, including the evolution of nursing practice, professional behavior, scope of practice, therapeutic communication, nursing process, evidence-based practice, medical terminology, care plan and documentation, physiologic adaptation, health care delivery systems, spirituality and death and dying.
Prerequisite(s): CSCI1101 or CPTR1101 or test out, Math0090

NURS1406 Nursing Fundamentals I 3 2/1/0
This course begins to prepare students to provide safe, therapeutic nursing care to diverse patient populations across the lifespan. Content includes asepsis and infection control; holistic assessment; basic pharmacologic principles and concepts; safe medication administration; pain management; complementary/alternative therapies; and perioperative nursing care. This course also integrates the content and skills necessary to promote and maintain health and wellness of the neurological, integumentary, sensory and musculoskeletal systems.
Prerequisite(s): CSCI1101 or CPTR1101 or test out, Math0090; HLTH1115

NURS1415 Nursing Clinical I 2 0/2/0
This course will promote the application of fundamental skills while providing holistic nursing care to a diverse group of patients. This course incorporates but is not limited to application of the nursing process, critical thinking, reporting and recording, physical assessment, medication administration as well as other fundamental nursing skills within the role of the professional nurse.
Prerequisite(s): NURS1400, NURS1406; **Corequisite** NURS1414, NURS1416

NURS1416 Nursing Fundamentals II 4 2/2/0
This course is designed to prepare students to apply teaching and learning principles in promotion, maintenance and restoration of health to diverse patient populations across the lifespan and integrates the content and skill necessary to promote and maintain health and wellness of the gastrointestinal, metabolic, immune, hematologic, cardiovascular, respiratory and urinary systems, as well as fluid and electrolyte balance.
Prerequisite(s): NURS1400, NURS1406

NURS1426 Reproductive Health 2 2/0/0
This course introduces the student to antepartal, intrapartal and postpartal nursing care for mother and infant. Holistic care and wellness promotion are emphasized. Student will plan nursing care for diverse clients across the lifespan to maintain and promote reproductive wellness to include healthy sexuality, fertility and family planning. Plan nursing care to maintain and promote wellness from birth to age 1 to include normal growth and development of the infant.
Prerequisite(s): NURS1400, NURS1406; Corequisite NURS1415, NURS1416

NURS2120 Professional Nursing Pharmacology 2 2/0/0
This course will provide the nursing student with specific considerations related to medication administration for drug classifications related to disease processes. Actions, therapeutic uses, adverse effects and interactions of drug categories will be discussed. Nursing considerations for categories of common drug classifications will be covered. Legal and ethical considerations for the professional nurse in regard to drug administration will be studied.
Prerequisite(s): NURS1406, BIOL2232; Corequisite NURS2410

NURS2410 Role Transition 2 2/0/0
This course is designed to help the practical nursing student prepare for his/her transition to the Associate Degree Nursing role. Primary content includes role differentiation, physical assessment, nursing process care planning and teaching and learning.
Prerequisite(s): PN Licensure

NURS2426 Reproductive Disorders 2 2/0/0
This course is designed to prepare students to plan care to meet basic human needs to assist clients as they adapt to abnormal pregnancy, delivery, post-partum, reproductive conditions and/or newborn illnesses or abnormalities.
Prerequisite(s): NURS1400, NURS1406, NURS1415, NURS1416, NURS1426 or LPN and NURS2410

NURS2437 Nursing Clinical II 4 0/4/0
The focus of this clinical course is for the student to assess, plan, implement and evaluate care for one to two patients/clients.
Prerequisite(s): NURS1400, NURS1406, NURS1416, NURS1415, NURS1426 or LPN and NURS2410

NURS2438 Restorative Nursing I 4 4/0/0
This course is designed to prepare students to plan care to meet basic human needs to assist patients/clients across the lifespan as they adapt to neurological, sensory, musculoskeletal, gastrointestinal, metabolic and immunological dysfunction.
Prerequisite(s): NURS1400, NURS1406, NURS1416, NURS1415, NURS1426 or LPN and NURS2410

NURS2447 Nursing Clinical III 4 0/4/0
The focus of this course is for the student to assess, plan, implement and evaluate care for groups of clients, to act as a manager of care for a team of clients, to delegate nursing actions and to supervise nursing personnel.
Prerequisite(s): NURS2437, NURS2426; Corequisite NURS2464

NURS2448 Restorative Nursing II 3 3/0/0
This course is designed to prepare students to plan care to meet basic human needs to assist patients/clients across the lifespan as they adapt to dysfunction of the integumentary, urinary, cardiac, hematologic and respiratory systems, as well as fluid/electrolyte imbalances.
Prerequisite(s): NURS2437, NURS2438; Corequisite NURS2464

NURS2455 Advanced IV Therapy 1 0/1/0
This lab course will focus on advanced nursing skills performed by the professional nurse. Concepts will include advanced medication calculations and nursing care for patients throughout the lifespan which includes peripheral catheters, central catheters, safe administration of blood products, chemotherapy and parenteral nutrition.
Prerequisite(s): NURS1415 or PN or LPN and NURS2410

NURS2464 Nursing Leadership 1 1/0/0
This course is designed to prepare students for their role as nurse leaders. Areas of focus include knowledge and skills necessary to make decisions regarding setting priorities, delegation, management, supervision, teaching, continuity of care, legal parameters of nursing practice and ethical issues in nursing.
Prerequisite(s): NURS1406, NURS1416, NURS1415, NURS1426, NURS1434, NURS1444; or LPN and NURS2410

NURS2466 Mental Health Nursing 2 2/0/0
This course introduces the student to concepts of mental health/mental illness and its theories along with psychopharmacology. Emphasizes holistic nursing care of patients/clients with psychiatric and substance abuse disorders.
Prerequisite(s): NURS1400, NURS1406, NURS1416, NURS1415; or LPN and NURS2410

PARA1101 Intro to Paralegal 3 3/0/0
This course provides an overview of the paralegal profession, the legal office and the legal system.
Prerequisite(s): None

PARA1102 Research and Writing I 3 3/0/0
This course is a general introduction to recorded sources of law. It will examine where and how it can be found. The course will include discussion of the sources of law and practical writing exercises.
Prerequisite(s): ENGL0050, DVCM0006, or appropriate placement test score

PARA1106 Wills, Trusts and Probate 3 3/0/0
This course includes a study of the procedures, documents and other techniques used in the planning for transfer of property after death, administration of estates and the preparation of federal and state gift, estate and income tax returns.
Prerequisite(s): None

PARA1110 Torts for Paralegal 3 3/0/0
This course includes the study of the procedures, documents and techniques used in the practice of civil litigation, personal injury and family law. Topics for civil litigation include case intake, discovery, trial preparation, trial practice and post-judgment relief. Topics for family law include marriage, separation, divorce, annulment, adoption and custody.
Prerequisite(s): None

PARA1112 Legal Ethics for the Paralegal 3 3/0/0
This course covers the attorney-client privilege as it relates to paralegals, unauthorized practice of law, regulation of paralegals, ethical codes and rules.
Prerequisite(s): None

PARA2202 Research and Writing II 3 3/0/0
This course is a continuation of Research and Writing I. Students will develop skills in identifying, analyzing and researching legal issues. Writing exercises will be more complex, including preparation of legal memoranda.
Prerequisite(s): PARA1102

PARA2204 Real Property 3 3/0/0
This course includes the law dealing with interest in, ownership of and title to real estate. Emphasis is on legal descriptions, the recording system, procedures and documents for real property transfer and zoning of real property.
Prerequisite(s): None

PARA2210 Advanced Paralegal Practices 3 3/0/0
This course provides in-depth study of law office management, interviewing techniques, employment policies, organizational structure of law firms and financial procedures
Prerequisite(s): ACCT2211, ACCT2201, PARA1101

PARA2212 Family Law 3 3/0/0
This course will explore and research family law concepts of marriage, divorce, annulment, child custody, property settlements and adoption.
Prerequisite(s): None

PE1109 Wellness Skills 2 1/1/0
This course is designed to introduce wellness concepts and provide the knowledge and skills necessary to develop a healthy physical, mental and social lifestyle. Students will actively seek to develop and maintain a balance of these elements through increased knowledge of appropriate activities including positive and responsible belief systems and choices. Topics may include anatomy, physiology, kinesiology, emotional/mental health, nutrition, fitness, weight management, drug use/abuse, planning and commitment to change. Course includes physical activity participation by students.
Prerequisite(s): None

Course #	CourseTitle	CR	Lec/Lab/OJT

PE1110 Aerobics 0.5 0/.5/0
Introduction to aerobic conditioning (dance), target heart rate range, benefits, what constitutes aerobic exercise, common injuries.
Prerequisite(s): None

PE1114 Bowling 0.5 0/.5/0
Introduction to the fundamentals, rules, scoring and equipment of the game.
Prerequisite(s): None

PE1126 Archery 0.5 0/.5/0
Selection and care of equipment, history, terminology, rules, safety and etiquette. Fundamentals of target technique including stance, aiming (point of aim, instinctive, sight), release and scoring.
Prerequisite(s): None

PE1127 Alpine Skiing 0.5 0/.5/0
Selection and care of equipment, history, background, technique and safety of the sport. Individual and group instruction in the fundamentals of downhill skiing. Additional fee.
Prerequisite(s): None

PE1128 Cross Country Skiing 0.5 0/.5/0
Selection and care of equipment, history, background and technique of the sport. Individual and group instruction in the fundamentals along with ample opportunity for practice.
Prerequisite(s): None

PE1130 Beg Golf 1 0/1/0
The fundamentals of golf necessary to play at the beginning recreational level. Includes discussion of rules, etiquette, equipment and terminology. Classroom and golf course experience. Additional fee.
Prerequisite(s): None

PE1134 Recreational Games 0.5 0/.5/0
An introduction to the rules, skills, history and etiquette of recreational games. Includes outdoor yard games as well as indoor games, all at a minimal level of competitiveness.
Prerequisite(s): None

PE1141 Intro Strength Training 1 0/1/0
Introduction to weight lifting, weight room safety, periodization, energy systems, nervous system, muscular system and how this information is used to formulate a weight training program as a means to achieve muscular strength, muscular endurance, tone or size. An additional workout day per week is required.
Prerequisite(s): None

PE1145 Personal Fitness 0.5 0/.5/0
Introduction to the basic concepts of personal fitness, i.e., cardiovascular fitness, muscular strength/endurance and flexibility. Develop a personal fitness program. Cardiovascular fitness will be emphasized.
Prerequisite(s): None

PE1148 Lifetime Fitness 2 1/1/0
This course is designed to provide the groundwork for students to design their own total fitness program and manage their stress and emotional well being. This course provides information that is relevant to each person's particular fitness goals, showing students how to alter their programs as their needs change. Individual physical limitations, weight problems and cardio-vascular fitness, flexibility and muscular strength levels are all significant parts of this course design.
Prerequisite(s): None

PE1151 Basketball 0.5 0/.5/0
Stresses development of fundamentals with advance to game competition. Introduction to rules and team strategy.
Prerequisite(s): None

PE1152 Volleyball 0.5 0/.5/0
Review of history and rules of volleyball. Stress placed on development of basic skills and team play strategy.
Prerequisite(s): None

PE1153 Softball 0.5 0/.5/0
Review of fundamentals with advance to game competitions. Considers rules and team strategy.
Prerequisite(s): None

PE1156 Badminton 0.5 0/.5/0
This course is designed to introduce the student to the fundamentals, rules and strategy and strokes used in singles and doubles badminton.
Prerequisite(s): None

PE1160 Fitness Walking 1 0/1/0
The course presents the student with numerous opportunities to learn about and develop his or her self-image, improve his or her fitness levels and learn to monitor his or her fitness levels. The course is designed to help students improve fitness, manage stress and preserve emotional well-being.
Prerequisite(s): None

PE1190 Vars Football 1 0/1/0
The course presents the student with numerous opportunities in a variety of situations to learn about and develop their self-image, characteristics of high achievement and physical skills in a competitive environment. May be repeated once for credit.
Prerequisite(s): None

PE1192 Vars Basketball 1 0/1/0
The course presents the student with numerous opportunities in a variety of situations to learn about and develop their self-image, characteristics of high achievement and physical skills in a competitive environment. May be repeated once for credit.
Prerequisite(s): None

PE1193 Vars Baseball 1 0/1/0
This course presents the student with numerous opportunities in a variety of situations to learn about and develop their self-image, characteristics of high achievement and physical skills in a competitive intercollegiate baseball setting. May be repeated once for credit.
Prerequisite(s): None

PE1194 Vars Golf 1 0/1/0
This course presents the student with numerous opportunities in a variety of situations to learn about and develop their self-image, characteristics of high achievement and physical skills in a competitive environment. May be repeated once for credit.
Prerequisite(s): None

PE1197 Vars Volleyball 1 0/1/0
This course presents the student with numerous opportunities in a variety of situations to learn about and develop their self-image, characteristics of high achievement and physical skills in a competitive intercollegiate volleyball setting. May be repeated once for credit.
Prerequisite(s): None

PE1199 Vars Softball 1 0/1/0
The course presents the student with numerous opportunities in a variety of situations to learn about and develop their self-image, characteristics of high achievement and physical skills in a competitive environment. May be repeated for credit once.
Prerequisite(s): None

PE2210 Sports Specific Training 1-2
The course includes the development of a personal training program, the analysis of the recorded data and the manipulation of this data to maximize training outcomes. The student will train a minimum of four days per week. Course may be repeated for credit.
Prerequisite(s): None

PE2222 Law Enforcement Condition 2 0/2/0
This course is designed to prepare the law enforcement student to successfully pass the Minnesota POST qualifications in physical fitness and conditioning. The course introduces fitness techniques and strategies that promote and increase physical endurance, stamina and body strength. This course also emphasizes concepts necessary to develop a lifestyle that promotes physical, emotional and mental health. Topics may include stress management, nutrition, weight management, drug use/abuse and fitness maintenance.
Prerequisite(s): None

PE2240 Athletic Injury, Care and Prevention 2 2/0/0
This course is offered to coaches interested in sports medicine and students interested in coaching and/or athletic training. It is designed to enhance the student's knowledge and performance in sports medicine. The course will cover athletic injury prevention measures, injury care and management, basic injury assessment, nutrition and specific athletic injuries and related problems.
Prerequisite(s): None

PE2241 Principles of Coaching 3 3/0/0
This course is designed to introduce students to athletic coaching philosophies, basic coaching concepts in team and individual sports and theories involved in coaching. Emphasis will be on legal issues surrounding coaching, developing coaching philosophies, exploring diversity in coaching and rules and regulations associated with coaching at different levels.
Prerequisite(s): None

PE2251 Foundations in PE 2 2/0/0
An introductory classroom course for prospective physical education majors, minors and anyone interested in gaining general knowledge of the field. Includes a review of history, principles, objectives and vocational opportunities. Examines current issues in the field of physical education and the relationship of the profession to health, recreation, athletics and intramural sports.
Prerequisite(s): None

PE2253 Inrto to Recreation 2 2/0/0
Introductory course designed to introduce the student to the broad scope of the field of recreation and leisure. Study includes history, philosophy, principles and impact of recreation. Topics include leadership, organization, financing and career opportunities.
Prerequisite(s): None

PE2254 Sports in Society 3 3/0/0
A discussion of the impact sports has in society and the values we place on sports. The course will explore the values, virtues, consequences, rights and responsibilities of sports in our culture. The course is designed to improve the understanding of legal, racial, academic and moral issues of sports and athletics.
Prerequisite(s): None

PE2255 Aquatic Outdoor Recreation 2 1/1/0
A course in which 4-6 days are spent on a wilderness field trip. Major topics covered are camping and camping equipment, camp food and nutrition, canoeing, fishing, nature study and woodlore, safety, map and compass and outdoor philosophy.
Prerequisite(s): None

PE2256 Winter Outdoor Recreation 2 1/1/0
Course stresses appreciation and enjoyment of the winter environment. Activities include camp-outs, snow travel, snow shelters, sliding, orienteering, snow shoeing and cross country skiing. Classroom topics are outdoor issues, nature appreciation, diet and nutrition, safety and survival clothing and equipment. A fee is charged to cover cost of food and supplies. Elective for students in social work, biological sciences and recreation.
Prerequisite(s): None

PE2257 Backpacking 1 0/1/0
An activity-oriented course. Classroom topics include preparing for the outdoor experience:
1. foods and nutrition
2. equipment
3. geography maps, trails and orienteering
4. ecology and nature
5. safety and survival
6. fitness for activity
The class will plan the trip, route, meals and days, and complete the backpacking experience.
Prerequisite(s): None

PE2299 Sports Perfor Enhanc 1 0/1/0
This course is designed to introduce the student to the science, methodology and techniques used to improve athletic performance. A variety of physical, mental and emotional training topics will be experienced. Exercises and/or drills for power, speed, quickness, balance, hand-eye coordination, relaxation, imagery and positive self-imaging will be performed. NOTE: At least three days per week of strength training are expected by each student outside of the class.
Prerequisite(s): None

PHIL1130 Critical Thinking 3 3/0/0
Meets MNTC Goal Area 2. This course focuses on studying the structure of argument, the detection of common argument fallacies, the creation of cogent arguments and the acquisition of skills needed to translate clearly constructed arguments into argumentative essays on contemporary topics. Students will study inductive and deductive styles of thinking, valid and invalid argument forms, the differences between facts and values, judgment and belief and the importance of linguistic definition in constructing strong arguments.
Prerequisite(s): None

PHIL1201 Ethics 3 3/0/0
Meets MNTC Goal Areas 2, 6 and 9. This course is an introduction to the topic of ethics and examines these questions: What is ethics? How do we make ethical decisions? Are things that are legally right necessarily right? Should we consider our own interests when making ethical decisions? Are things ethically right simply because God says they are right? If our culture says something is ethically right, does that mean it is ethically right? The course also examines numerous topical ethical issues such as racism, terrorism and censorship.
Prerequisite(s): None

PHIL1211 Intro to Philosophy 3 3/0/0
Meets MNTC Goal Areas 2 and 6. This course is an introduction to philosophy. In this course, the following questions are examined: Does God exist? Does God not exist? Can evil and God both exist? Do humans have a free will? Do humans have souls? Is there life after death? What can we know? Why do some people believe that knowing anything is possible?
Prerequisite(s): None

PHIL2220 Environmental Ethics 3 3/0/0
Meets MNTC Goal Areas 9 and 10. This course examines the basic positions and concepts within the field of environmental philosophy. A primary emphasis will be placed upon understanding our moral obligations toward the natural environment. Representative course topics may include: What is nature?; Do humans have direct duties towards the natural world?; What is deep ecology? Should we conserve or preserve our natural environment?; Do intrinsic values exist in nature? Is a land ethic possible? What is ecofeminism?
Prerequisite(s): None

PHIL2224 Philosophy of Religion 3 3/0/0
Meets MNTC Goal Areas 2, 6 and 8. This course explores proposed answers to the question, "What role can religion play when considering questions about the meaning of life?" The course will consider the traditional arguments for the existence of God as expressed by Western thinkers as well as non-Western efforts to reconcile order and disorder in the universe. The course will focus on the relationship between faith and reason and will reflect on the nature of religious experience and how diverse cultures express various ways of knowing about the divine.
Prerequisite(s): None

PHIL2225 Bioethics 3 3/0/0
Meets MNTC Goal Areas 2 and 9. This course will explore ethical issues that arise from advancements in science and technology (e.g. genetic engineering, cloning, patent rights) as well as the philosophical underpinnings of current scienfic research and how philosophy differs from science and the law.
Prerequisite(s): None

PHIL2230 Existentialism 3 3/0/0
Meets MNTC Goal Areas 2 and 6. This course provides an introduction to existential philosophy, explorations of key existentialist ideas and discussions of how existential thought might be applied to such themes as freedom, existence, despair, authenticity, alienation and death. Existentialism, as the name implies, emphasizes existence (that one is) over essence (what one is). The most famous definition of existentialism was articulated by Jean-Paul Sartre, who called it the theory that existence precedes essence. In other words, you are what you make yourself to be - you create your essence as you go along. The course will look at influential existentialists from Kierkegaard to Sartre and Camus.222
Prerequisite(s): None

PHIL2235 Symbolic Logic 3 3/0/0
Meets MNTC Goal Area 4. This course is designed as an introduction to symbolic logic, as well as the nature of language and multiple methodologies for proving arguments. This course will focus on formal systems of logic and deductive validity and will include proofs, methods and translation in sentential and predicate logics. The course will also have an introduction to meta-theory, the extensions of logic and inductive logic.
Prerequisite(s): Math1020 or ACT score of 20 or higher; Accuplacer score of 40 or higher. It is recommended students take PHIL1130 prior to this class.

PHIL2240 Non-Western Philosophical Perspectives 3 3/0/0
Meets MNTC Goal Area 6, 8. This course sawill explore the standard introduction to philosophy type questions (e.g. does God exist; are humans completely physical beings; can we have knowledge; how can we differentiate between right and wrong; do we have free-will; etc.) mainly from the standpoint of non-Western thinkers. We will consider how such questions have been pursued and answered in historically non-dominant cultures (i.e. Asian, Africana, Latin American and indigenous) and compare and contrast our findings with the dominant Western philosophies. As a result of taking this course, students should be better able to place contemporary philosophical issues in a global context as well as be better able to interact with and understand members of a diverse society.
Prerequisite(s): None

PHRM1001 Fund Concepts of Pharmacy 3 3/0/0
This course introduces the student to the organization and function of the hospital and retail pharmacy. Emphasis is placed upon the duties and responsibilities of the pharmacy technician and the calculations required to accurately prepare patient medications for distribution.
Prerequisite(s): None

PHRM2001 Pharmacy Prin / Prac I 4 2/2/0
This course covers drug names, classifications and mechanisms of action, the use of computers in pharmacy and their practical applications. The student will be introduced to hospital and retail dispensing techniques as well as basic customer service.
Prerequisite(s): None

PHRM2002 Pharmacy Prin / Prac II 5 2/3/0
This course covers intravenous drug admixture, TPN compounding, critical care intravenous admixture and unit dose medication dispensing to nursing units. Emphasis is placed upon medication storage and stability, diabetic supplies and chemotherapy storage and admixture.
Prerequisite(s): PHRM1001, PHRM2001

PHRM2004 Drug Properties/Distribution 3 2/1/0
This course provides the student with basic physical and chemical drug properties and the functions related to purchasing and inventory control in the pharmacy. Emphasis is placed upon the theory, stability and safety of drug products and the procedures required to develop and maintain inventory control.
Prerequisite(s): PHRM1001, PHRM2001

PHRM2010 Experiential / Hospital 3 0/0/3
This supervised instructional experience in the clinical setting introduces the student to tasks performed by the pharmacy technologist.
Prerequisite(s): PHRM2002, PHRM2004

PHRM2012 Experiential / Retail 3 0/0/3
This supervised instructional experience in the clinical setting introduces the student to tasks performed by the pharmacy technologist.
Prerequisite(s): PHRM2002, PHRM2004

PHYS1101 Physics and Environment 3 2/1/0
Meets MNTC Goal Areas 2, 3 and 10. This course presents an introduction to the physical characteristics of the earth system and the many systems humanity has developed to support our current technological society. We will also discuss some of the problems that arise when the needs of our human systems and those of the larger earth system we inhabit come into conflict with each other. We will examine the effects of past and present changes in the earth system and the question of predicting future changes.
Prerequisite(s): MATH1020 or equivalent competency

PHYS1105 Fundamental Concepts in Physics 3 3/0/0
Meets MNTC Goal Area 3. A demonstration-based course that is an introduction to selected topics in classical and modern physics. Topics will include measurement and significant digits, graphing, dimensional analysis, mechanics of motion, vibrations, waves, sound, electricity and magnetism, light and optics, atomic physics and atomic spectra, lasers and optical fibers, nuclear physics and radiation. This course may be taken separately from PHYS 1106. The course uses active learning techniques. It uses many demonstrations and instructor-guided small group problem-solving activities. Simple algebra is used to ensure that students grasp the concepts. A grade of C or better in the prerequisite, Math 0090, is required. Intended for all students but especially designed for non-science majors who want an appreciation of and a limited working knowledge in some major areas of physics.
Prerequisite(s): MATH0090 with a grade of C or better

Course #	CourseTitle	CR	Lec/Lab/OJT

PHYS1106 Fund of Physics - Mechanics 3 2/1/0
Meets MNTC Goal Area 3. An introduction to selected topics in classical physics. Topics covered will include measurement and significant digits, dimensional analysis, vectors, motion, force, work and energy, momentum and rotational dynamics. Introductory-level college algebra is used frequently to ensure that students grasp the principles and retain a working knowledge of them. A grade of C or better in the prerequisite, Math 1020, is required. This course may be taken separately from PHYS 1105. Two lectures and one two-hour lab per week. Intended for all students but especially designed for non-science majors or those who need an introductory-level working knowledge of physics.
Prerequisite(s): MATH1020 with a grade of C or better

PHYS1120 Introduction to Astronomy 3 3/0/0
Meets MNTC Goal Area 3. This course includes a description of the universe covering our current understanding of the solar system, lunar and stellar study, interstellar gases, galaxies etc. It focuses on the development of modern astronomy and its techniques, astronomical coordinates, the use of astronomical instruments and recent discoveries in astronomy and cosmology. This non-lab course is designed for science and non-science majors.
Prerequisite(s): None

PHYS1401 College Physics I 4 3/1/0
Meets MNTC Goal Area 3. This course gives a theoretical and practical introduction to physics, including kinetics in one and two dimensions, force and dynamics, bodies in equilibrium, work and energy, linear momentum, rotational motion, fluids, waves and sound. Lab equipment is used to illustrate these concepts. A mastery of college algebra and some trigonometry is essential for success in this course. The ability to use computers for creating reports and spreadsheets is needed for lab work. Physics 1401 is intended for all students but especially designed for students majoring in forestry, biological sciences, dentistry, pharmacy, veterinary medicine, physical therapy and other fields related to medicine. Lab is required.
Prerequisite(s): MATH1115

PHYS1402 College Physics II 4 3/1/0
Meets MNTC Goal Area 3. This course is open to all students and gives a theoretical and practical introduction to physics. It is a continuation of Physics 1401, College Physics I. However, it may be taken without having taken Physics 1401. Topics include thermodynamics, selected topics in electricity and magnetism, DC and AC circuit theory, light and electromagnetic radiation, atomic physics, spectroscopy, lasers and photonics and nuclear physics. Lab equipment is used to illustrate these concepts. A mastery of college algebra and some trigonometry is essential for success in this course. Lab is required. Physics 1402 is intended for all students but especially designed for students majoring in forestry, biological sciences, dentistry, pharmacy, veterinary medicine, physical therapy and other fields related to medicine.
Prerequisite(s): MATH1115

PHYS1411 University Physics I 5 3/2/0
Meets MNTC Goal Area 3. This course is open to all students but especially suited for engineering students. It is a calculus-based course and gives a theoretical and practical introduction to physics for math, science and engineering majors. Topics include kinetics of one and two dimensions, force and dynamics, bodies in equilibrium, work and energy, linear momentum, rotational motion, fluids, waves and sound. Lab equipment is used to illustrate these concepts. A mastery of college algebra, as well as knowledge of calculus and trigonometry, is essential for success in this course. The ability to use computers for creating reports and spreadsheets is needed for lab work. Lab is required.
Prerequisite(s): Concurrent enrollment in MATH1134

PHYS1412 University Physics II 5 3/2/0
Meets MNTC Goal Area 3. This course is open to all students but is especially suited for engineering students. The course is a continuation of Physics 1411, University Physics I. However, it may be taken without having taken Physics 1411. Topics include thermodynamics, selected topics in electricity and magnetism, DC and AC circuit theory, optics, light and electromagnetic radiation, atomic physics, spectroscopy, lasers, photonics and nuclear physics. Lab equipment is used to illustrate these concepts. A mastery of college algebra as well as knowledge of calculus and trigonometry is essential for success in this course. Lab is required.
Prerequisite(s): MATH 1135 concurrently, or by placement exam

PLBG1102 Piping Trades/Job Safety 2 1/1/0
This course will introduce the student to the plumbing profession. Topics will include history, safety, plumbing tools, plumbing terminology, plumbing system components, basic plumbing principles and fundamentals of rigging.
Prerequisite(s): None

PLBG1104 Bldg Sewers/Drainage Sys 3 1/2/0
This course will introduce the student to basic proper techniques and procedures for the installation of plumbing systems. Topics will include drain, waste and vent systems, potable water systems, gas piping systems and system testing.
Prerequisite(s): None

PLBG1106 Piping Grades/Elev/Calcul 3 2/1/0
This course covers the application of mathematics to plumbing calculations in applying code regulations pertaining to proper installation procedures of horizontal drainage piping. The student will use formulas common to the piping industry.
Prerequisite(s): None

PLBG1108 Plumbing/Piping Drawings 2 1/1/0
This course provides the student with a technical understanding and skills in blueprint reading needed by plumbers. Topics will include floor plans, elevation plans, detail drawings and interpretation of isometric drawings.
Prerequisite(s): None

Course #	CourseTitle	CR	Lec/Lab/OJT

PLBG1110 Copper Pipe Procedures 2 1/1/0
This course provides the student with the technical knowledge and skills for completing copper piping procedures. Topics include safety, appropriate usage, properties of copper, sizes and weights of pipe tubing and fittings including flared and compression types, soldering and brazing techniques for copper pipe work.
Prerequisite(s): None

PLBG1112 Plastic Pipe Procedures 2 1/1/0
This course provides the student with an understanding and skills for completing plastic piping procedures. Topics include safety, joining drainage, waste, vent, water and distribution piping, chemical usage and applicable state plumbing code for plastic piping procedures.
Prerequisite(s): None

PLBG1114 Steel Pipe Procedures 2 1/1/0
This course provides the student with an understanding and skill for completing steel piping procedures. Topics include appropriate usage, fittings, safety, tools, equipment and skill development in cutting, threading and fabricating steel piping systems.
Prerequisite(s): None

PLBG1116 Plumbing Systems 3 2/1/0
This course will provide the student with continued studies in plumbing systems. Topics will include drain, waste and vent systems, potable water systems, gas piping systems, system testing and advanced plumbing principles.
Prerequisite(s): None

PLBG1118 State Plbg Code Interpret 1 1/0/0
This course provides the student with an introduction to the Minnesota State Plumbing Code as it relates to basic plumbing principles, materials, installation limitations and licensing laws.
Prerequisite(s): None

PLBG1120 Plumbing Installation 3 0/3/0
This course will provide the student with continued studies of proper techniques and procedures for the installation of plumbing systems. Topics will include drain, waste and vent systems, potable water systems, gas piping systems, system testing, faucets, fixtures and water heaters.
Prerequisite(s): None

PLBG1122 Plbg Repair/Service Work 2 0/2/0
This course provides the student with practical experiences in repair, maintenance and servicing of plumbing systems common to a variety of settings.
Prerequisite(s): None

PLBG1124 Plumbing Field Internship 3 0/0/3
This course will provide the student with the opportunity to utilize the skills, techniques and procedures developed in previous coursework in an actual work environment. The student will complete industry training under the supervision of an approved employer.
Prerequisite(s): Advisor approval

PLBG1126 Oil Burner Service Work 3 1/2/0
This course covers the servicing of the fuel pump, testing and servicing the fuel supply, the oil burner nozzle, basic oil burner controls, combustion testing and adjusting the oil burner for maximum efficiency.
Prerequisite(s): None

PLBG1128 Heat Sys Design and Install 3 1/2/0
This course provides the student with a technical understanding of heating system design and installation. Topics include heat loss calculations, heating systems selection and design, installation techniques, testing procedures and operation of heating systems.
Prerequisite(s): None

PLBG1130 Hydronic Heating System 3 2/1/0
This course provides the student with a technical understanding of hydronic heating system design. Topics include heat loss calculations, heating systems selection and design.
Prerequisite(s): None

PLBG1132 Water Treatment/Conditioning 3 2/1/0
In this course, the student will learn water softener service, water treatment in boilers, pH balance, testing of sanitary water and gray water hazards.
Prerequisite(s): None

PLBG1134 Advanced Plumbing Blueprints 3 1/2/0
This course will provide the student with continued studies in blueprint reading. Topics will include specifications, fixture drawings, shop drawings and advanced isometrics.
Prerequisite(s): None

PLBG1136 Basic Plumbing Code 2 2/0/0
This course will introduce the student to model plumbing code rules and regulations. Topics will include the Minnesota State Plumbing Code and Uniform Plumbing Code.
Prerequisite(s): None

PLBG1138 Advanced Plumbing Code 3 3/0/0
This course will provide the student with continued studies of model plumbing code rules and regulations. Topics will include the Minnesota State Plumbing Code and Uniform Plumbing Code.
Prerequisite(s): None

PLBG1140 Plumbing Service Learning Project 3 0/0/3
This course will provide the student with the opportunity to utilize the skills, techniques and procedures developed in previous coursework in a designated community service learning project. The student will perform community service under the supervision of an approved community partner.
Prerequisite(s): Advisor approval

PNSG1200 Concepts of Nursing 2 2/0/0
Introduces the nursing concepts of the interactive role of the practical nurse within health care. Topics covered include the nursing process, critical thinking, nurse patient interaction, documentation, admission/discharge, professionalism, holism, cultural sensitivity in health care, self care of the nurse, teaching and learning concepts.
Prerequisite(s): Satisfactory assessment scores in reading, writing and math or completion of developmental coursework with a grade of "C" or better; successful completion of the nursing assistant course; and admission to the practical nursing program

PNSG1207 Health Promotion I 5 3/2/0
This course introduces the foundations of nursing care across the lifespan. It develops the student's awareness of clients as individuals and their basic needs as well as technical skills necessary for client care. Topics included are safety, data collection/diagnostics, fluid and electrolytes, nutrition, pre- and post-operative care, medication administration, comfort, integumentary and cancer.
Pre/Corequisite(s): BIOL2230, PNSG1200

PNSG1209 Family Wellness 3 3/0/0
This course develops the student's awareness of individual health needs within the family relating to maternal child health and the role of the nurse in lifespan health promotion. Topics included are: maternal child health, community nursing (home health, public health, school health) and lifestyle choices (communicable diseases, prevention and early detection, risk behaviors).
Pre/Corequisite(s): BIOL2230, PSYC2222, BIOL2232, PNSG1200

PNSG1214 Nursing Pharmacology 2 2/0/0
This course develops the student's awareness of basic pharmacological concepts, drug legislation, drug classifications, therapeutic effects, side effect, nursing considerations of medications and dosage calculations. Drug reference utilization is included. Prerequisite(s):
Pre/Corequisite: BIOL2232; **Recommended Pre/Corequisite:** PNSG1207

PNSG1216 PN Clinical I 5 0/5/0
This course is an application of the nursing process, documentation, conceptual and foundational skills along with the role of the practical nurse in a variety of clinical settings with selected clients. The course incorporates health theories as related to the needs of the clients in the role of prevention, promotion and restoration.
Prerequisite(s):
Due to clinical site requirements, the campuses of Detroit Lakes, Moorhead, and Wadena have the following: Current Healthcare Provider/Professional Rescuer CPR certification; PNSG1200, PNSG1207; Pre/Corequisites: PNSG1209, PNSG1214, PNSG1217.
Due to clinical site requirements, the campus of Fergus Falls has the following Pre/Corequisites: PNSG1200, PNSG1207, PNSG1209 and PNSG1214.

PNSG1217 Health Promotion II 4 2/2/0
This course develops the student's awareness of health promotion across the lifespan. Musculoskeletal, respiratory, urinary, reproductive and digestive systems will be covered.
Pre/Corequisite(s): PNSG1207, BIOL2232

PNSG1220 Psychosocial Nursing 3 3/0/0
This course develops the student's awareness of the role of the practical nurse and the application of theories related to coping and adaptations, stress/crisis, therapeutic communication, mental health and illness, grief/loss, death and dying and individuals with delayed developments throughout the lifespan.
Prerequisite(s): PSYC2222; **Pre/Corequisite:** PNSG1200

PNSG1223 Health Promotion III 4 4/0/0
This course develops the student's awareness of lifespan health promotion. The systems included are cardiovascular, immune, hematological, neuro/sensory and endocrine. Topics included are: cardiovascular/peripheral vascular, immune system/lymph, hematological, neuro/sensory, endocrine.
Prerequisite(s): PNSG1207

PNSG1226 PN Clinical II 4 0/4/0
This course is a continuation and advancing application of the nursing process, documentation, conceptual, foundational and technical skills along with the role of the practical nurse in a variety of clinical settings with selected clients. The course incorporates health theories as related to the needs of the clients in the role of prevention, promotion and restoration of health.
Pre/Corequisite(s): PNSG1209, PNSG1216

PNSG1232 Principles of IV Therapy 1 0/1/0
This course focuses on the skills and knowledge needed by the practical nurse in areas of advanced intravenous therapy. This course provides four hours of supervised practice in the college lab setting including a minimum of three individual, supervised and successful venipunctures, one of which must occur on a human volunteer. This information is presented through the use of lecture notes and college lab demonstration. Evaluation of the student's objective mastery and skill competency will be achieved through the student's successful completion of assignments, tests and return demonstration.
Prerequisite(s): PNSG1216 or current LPN Licensure

PNSG1234 Nursing Roles 1 1/0/0
This course is an overview of nursing within health care. Topics covered include health care trends, legal aspects, ethical issues, leadership characteristics, the role of the Board of Nursing, reality shock, nursing professionalism and other topics integral to the role of the nurse.
Pre/Corequisite(s): PNSG1216

PNSG1236 Practicum 2 0/2/0
This practicum experience provides the opportunity to integrate the knowledge and concepts learned throughout the curriculum. The student will be responsible for multiple patient assignments. Demonstration of safe and effective nursing care is required.
Prerequisite(s): Successful completion of all courses required in the Practical Nursing Program (with official grades) PRIOR to entry into practicum

PNSG1240 Transcultural Nursing Care 1 1/0/0
This course will expose nursing students to global diversity and multicultural populations. It will provide nurses with cultural knowledge and assist with therapeutic interventions, and communication techniques to promote holistic care. This course will address viewing one's own personal values and prejudices.
Prerequisite(s): Admission to the Practical Nursing program

PSCI1120 American National Government 3 3/0/0
Meets MNTC Goal Areas 5 and 9. This course provides an analysis of the organization, institutions and functions of the United States government.
Prerequisite(s): None

PSCI1130 State and Local Government 3 3/0/0
Meets MNTC Goal Areas 5 and 9. This course provides an analysis of the organization, procedure and functions of state and local governments and their relationship with the national government.
Prerequisite(s): None

PSCI2204 Comparative Government 3 3/0/0
Meets MNTC Goal Areas 5 and 8. Provides an introduction to the various systems of government used around the world. Students will compare the processes and institutions of both industrialized and underdeveloped nations and explore how cultures and histories have affected the development of those political systems.
Prerequisite(s): None

PSCI2206 International Politics 3 3/0/0
Meets MNTC Goal Areas 5 and 8. An introduction to the field of international relations, with an emphasis on the history, structure and processes of global political relations. Students will study the role of state and non-state actors, international conflict, war, global economic relations and international organizations. The course will also address current global challenges such as terrorism, arms control, the use of foreign aid in the developing world, and/or other pressing issues facing the international political system.
Prerequisite(s): None

PSCI2210 Judicial Politics 3 3/0/0
Meets MNTC Goal Areas 5 and 9. This course provides an overview of the American legal system, including the history and sources of law in the United States, the structure and purpose of local, state and federal courts and the role that politics play in our legal system. Through this process, the course will focus on the actors in the legal system and the judicial selection process; the importance of the judicial process as it impacts the political environment in the United States; decisions of the United States Supreme Court and the Court's interaction with the executive and legislative branches of government; and/or other topics as determined by the instructor.
Prerequisite(s): None

PSCI2220 Intro to Constitutional Theory 3 3/0/0
Meets MNTC Goal Areas 2, 5 and 9. This course focuses on some of the significant constitutional issues that confront policy makers and citizens of the United States. The framework for study is the United States Constitution. Topics covered include governmental powers, separation of powers, civil liberties, civil rights and federalism.
Prerequisite(s): None

PSCI2310 Ideas and Ideologies 3 3/0/0
Meets MNTC Goal Areas 7 and 9. This course provides a survey of the most significant ideological systems in Western politics, with an emphasis on the most influental ideas of the 20th and 21st centuries. Modern political movements such as communism, fascism, liberalism, conservatism, feminism, environmentalism and others will be explored and evaluated, with emphasis on the philosophical roots of these systems.
Prerequisite(s): None

PSYC1101 Human Interaction 3 3/0/0
Meets MNTC Goal Areas 2 and 5. Introductory course emphasizing practical applications of psycho-social concepts, with specific emphasis on personality development, human relations and motivation. Applicable for students in occupational, health-related fields or general education.
Prerequisite(s): None

PSYC1107 Environmental Psyc 3 3/0/0
Meets MNTC Goal Areas 2, 5 and 10. An exploration of the scientific study of human behavior and its interrelatedness with the environment. It attempts to describe and explain the behavior of people within their environment and the human responses to environmental issues. The course uses critical thinking on environmental issues and decision making for the future.
Prerequisite(s): None

Course #	CourseTitle	CR	Lec/Lab/OJT

PSYC1200 General Psychology 3 3/0/0
Meets MNTC Goal Areas 5 and 9. This is a comprehensive introductory overview of psychology that studies human behavior and mental processes. Topics include research methods, the history of psychology, theories of human behavior, the physiological basis of behavior, sensation, perception, behavioral learning, memory, problem solving, language development, personality theory, intelligence, the influence of groups on the behavior of individuals and altered states of consciousness such as sleep and dreams.
Prerequisite(s): None

PSYC1500 Positive Psychology 3 3/0/0
Meets MNTC Goal Area 5 and 9. The course includes different aspects of health psychology, humanistic psychology and positive psychology with emphasis on the integration of psychological, biological and physical factors and their consequences for health and well-being. The course starts with the body´s systems, psychological theories behind well-being and positive emotions which are followed up by work methods and interventions to improve public health, well-being and a healthy work life. Gender and cultural perspectives will be considered throughout the course. Scientific methodology and the design for the study of positive psychology are also included in the course.
Prerequisite(s): None

PSYC2220 Abnormal Psychology 3 3/0/0
Meets MNTC Goal Area 5. An introduction to the diagnosis, etiology and treatment of maladaptive behavior. The course will include historical and theoretical approaches, prevention and community resources.
Prerequisite(s): PSYC1200 or acceptance into PN or A.D.N. program

PSYC2222 Developmental Psychology 3 3/0/0
Meets MNTC Goal Areas 5 and 9. Study of human development from the life span perspective, including theories, stages and influences of development. The course views the individual from conception to death through physical, social, emotional and mental development.
Prerequisite(s): PSYC1200 recommended

PSYC2224 Social Psychology 3 3/0/0
Meets MNTC Goal Areas 5 and 7. Social Psychology includes theories and research involving an individual's reactions to others and the influence of others on individuals. Topics include social thinking, social influence and social relations.
Prerequisite(s): PSYC1200 or SOC1111

PSYC2226 Behavior and Environmental Management 3 3/0/0
Meets MNTC Goal Areas 2, 5 and 10. An exploration of the scientific study of human behavior and its interrelatedness with the environment. This course describes and explains the acquisition, maintenance and change of behavior with an emphasis on human application within a variety of environmental contexts. This course uses critical thinking on the principles and procedures used to understand and change the environment and human behavior.
Prerequisite(s): None

PSYC2228 Cross-Cultural Psychology 3 3/0/0
Meets MNTC Goal Area 7. This course is designed to cover the current issues and themes in the field of cross-cultural psychology. Examples include cultural variation along the lines of collectivism and individualism; psychological principles that might be universal compared to those that are culturally specific; and how content and context affect psychological functioning within and between cultures. A range of substantive areas within psychology will be examined and compared across multiple cultures, including social, developmental, organizational, cognitive and health psychology.
Prerequisite(s): PSYC1200 or SOC1111

PWST1101 Engine Fundamentals Theory 3 3/0/0
This is a theory class focused on shop practices, tools and equipment usage. Students will learn four-cycle engine construction and operating principals. Basic small engine troubleshooting and service procedures will be explained.
Prerequisite(s): None

PWST1102 Snowmobile Theory I 3 3/0/0
This course explains two-cycle snowmobile engine construction and operation. It will focus on different methods used to determine engine failure on two-cycle engines. The student will study two-cycle engine theory, design, construction and operation to include supporting systems. This course will provide students with information on determining the cause of engine failures and manufacture reconditioning procedures. Fuels and fuel system designs and service methods will be explained. Carburetor service and tuning procedures will be discussed.
Prerequisite(s): None

PWST1103 Snowmobile Theory II 3 3/0/0
Students will learn clutch maintenance and performance tuning. Snowmobile set-ups procedures and high-performance gas shock rebuilding will be taught. In addition electrical fundamentals and troubleshooting procedures will be covered. Snowmobile manufacture diagnostic equipment will be explained.
Prerequisite(s): None

PWST1104 Adv Engine/Troubleshooting Theory 3 3/0/0
This is a theory class explaining systematical electrical troubleshooting techniques. Students will be exposed to various manufacture electrical test equipment and troubleshooting procedures. Students will also learn hydraulic operation and service procedures as described by various manufacturers.
Prerequisite(s): None

PWST1111 Engine Fundamentals Lab 4 0/4/0
Students will demonstrate proper work ethics, shop safety and tool usage. Students will perform engine tests using proper diagnostic tools in order determine an engines mechanical condition. Complete four-cycle engine service will be performed.
Prerequisite(s): None

PWST1112 Snowmobile Lab I 4 0/4/0
Students will diagnose and repair two-cycle snowmobile engines. Student will use various manufacturer test equipment performing tests determining engine condition and mechanical failures. Engine reconditioning procedures will be demonstrated. Carburetor tuning and maintenance will be performed.
Prerequisite(s): None

PWST1113 Snowmobile Lab II 4 0/4/0
Students will disassemble clutches of various manufacturers, explain the function and effects of components, reassemble and tune. Students will remove suspension components and learn removal inspection and adjustment procedures. Students will perform electrical test procedures using various snowmobile manufacturer test equipment.
Prerequisite(s): None

PWST1114 Adv Engine/Troubleshooting Lab 4 4/0/0
This is a lab course practicing systematical electrical troubleshooting techniques. Students will use various manufacturer electrical test equipment and troubleshooting procedures. Students will also perform hydraulic operations and service procedures as described by various manufacturers.
Prerequisite(s): None

PWST1302 Snowmobile I 2 1/1/0
This course covers snowmobile engine designs, component identification and engine service procedures. This course also covers snowmobile fuel systems and service.
Prerequisite(s): None

PWST1304 Snowmobile Clutching 2 1/1/0
This course identifies major components of constant variable transmission systems and discusses maintenance, routine adjustment and tuning of variable transmission clutch systems.
Prerequisite(s): None

PWST1402 Chainsaws 2 1/1/0
Students will learn various manufacturers' repair and testing techniques. Students will learn saw repair, chain sharpening and maintenance of chainsaws. Students will be evaluated according to industry standards. Stihl bronze certification is available upon successful completion of the Stihl training portion of the class.
Prerequisite(s): None

PWST1404 Generators 2 1/1/0
Course covers generator components and test procedures. Students will test generator voltages and learn how to diagnose and repair generators. Students should have a basic understanding of electricity and electrical meter usage.
Prerequisite(s): None

PWST2101 Motorcycle Theory I 3 3/0/0
This course offers a comprehensive view of overhaul techniques, pre-tear down diagnostics and post-repair operations check of modern motorcycle engines. The student will be able to analyze various aspects of performance modifications. Students will learn about various motorcycle fuel systems being used on today's motorcycles.
Prerequisite(s): PWST1104

PWST2102 Motorcycle Theory II 2 2/0/0
This is an advanced motorcycle theory class discussing electrical systems/ components. Students will study manufacturer service procedures for testing and repairing electrical components and systems. In addition students will learn about motorcycle suspension systems. Students will learn how to make suspension change to match a rider's style. Students will learn recommended suspension tuning and repair procedures.
Prerequisite(s): PWST1104

PWST2111 Motorcycle Lab I 4 0/4/0
Repair procedures will be consistent with manufacturer and professional repair standards. Upon the successful completion of this class, a student will be able to perform a complete overhaul of the various types of modern motorcycle engines including water-cooled, multi-valve and air-cooled V-twin engines. Students will repair and troubleshoot motorcycle fuel systems.
Prerequisite(s): PWST1104

PWST2112 Motorcycle Lab II 4 0/4/0
Students will use manufacturer manuals and test equipment in order to diagnose and repair motorcycle electrical problems. In addition, students will perform suspension repairs and maintenance. Students will perform tire changes, fork/shock rebuilding, brakes and many other suspension related services.
Prerequisite(s): PWST1104

PWST2302 Advanced Power Equipment 4 2/2/0
This course covers overhaul procedures on outdoor power equipment. Students will make adjustments for optimum performance, learn multi-angle valve grinding procedures and the effects of modifications on a four-cycle engine. The course will also cover electrical and engine troubleshooting.
Prerequisite(s): None

PWST2304 Motorcycles I 3 1/2/0
Students will disassemble various types of four-cycle motorcycle and ATV engines, motorcycle and ATV transmissions. Valve trains will be discussed and repaired. Students will also learn motorcycle fuel sytems and components.
Prerequisite(s): None

PWST2306 Snowmobile Drives and Suspensions 3 1/2/0
This course covers suspension operation and components. Student will learn suspension set-up and adjustment techniques and various suspension designs used by manufacturers. Students will perform suspension service on various snowmobiles.
Prerequisite(s): None

PWST2308 Advanced Snowmobiles 3 1/2/0
Students will demonstrate troubleshooting skills. Students will perform electrical tests used in diagnosing electrical failures on snowmobiles. Students will learn and demonstrate a systematic approch to troubleshooting snowmobiles.
Prerequisite(s): None

PWST2310 Motorcycles II 4 2/2/0
This course covers electrical and suspension systems. Students will learn where motorcycle electrical components are located and their specific testing procedures. Students also learn the different types of suspension systems and repair procedures. Students will learn how to set up a motorcycle suspension for optimum performance.
Prerequisite(s): None

PWST2312 Advanced Motorcycle Systems 3 1/2/0
This course is designed to test troubleshooting skills and knowledge. Students will be presented with motorcycle problems and, using a systematic approach, students will identify and repair the unit. This course is designed to simulate the role of a technician in a dealership. Students will be expected to write a work order, estimate repairs, make the repair and finalize the work order.
Prerequisite(s): None

RADT1108 Intro to Rad Tech/Pat Care 3 2/1/0
This course is designed to provide the basic concepts of patient care, including consideration for the physical and psychological needs of the patient and family. Routine and emergency patient care procedures will be described, as well as infection control procedures utilizing standard precautions. Information confidentiality as it relates to medical records and other forms of health information will be presented. The role of the radiographer in patient education will also be identified.
Prerequisite(s): None

RADT1114 Radiographic Proc I 4 2/2/0
This course will provide the student with the knowledge necessary to perform radiographic procedures relative to the thoracic and abdominal organs (including GI studies), upper/lower extremities and pelvic girdle. Emphasis will be on radiographic terms, anatomy, positioning, manipulation of radiographic equipment and accessories and related patient care considerations.
Prerequisite(s): RADT1108, BIOL2232

RADT1124 Radiographic Proc II 4 2/2/0
This course will provide the student with the knowledge necessary to perform radiographic procedures relative to the urinary system, the bony thorax, skull, vertebral column and arthology. Emphasis will be on radiographic terms, anatomy, positioning, manipulation of radiographic equipment and accessories and patient care considerations. Basic techniques in venipuncture, contrast media types, intravenous medication and emergency response will be included.
Prerequisite(s): RADT1114, RADT1140

RADT1132 Principles of Radiobiology 4 3/1/0
This course is designed to establish a basic knowledge of atomic structure and terminology and provide an overview of the principles of radiation protection and interaction with living systems. Also presented are the nature and characteristics of radiation, (i.e. its effects on molecules, cells, tissues and the body as a whole) x-ray production and the fundamentals of photon interactions with matter. Radiation health and safety requirements of federal and state regulatory agencies, accreditation agencies, healthcare organizations and the responsibilities of the radiographer for patients, personnel and the public are also incorporated. Factors affecting biological response are presented, including acute and chronic effects of radiation.
Prerequisite(s): BIOL2232, RADT1140; **Corequisite:** RADT1124

RADT1140 Radiographic Imaging 4 2/2/0
This course is designed to establish a knowledge base in factors that govern and influence the production and recording of radiographic images and provide a basis for analyzing those images. Film and electronic imaging with related accessories will be emphasized. Included is the importance of minimum imaging standards, discussion of problem-solving technique for image evaluation and the factors that can affect image quality. Class demonstrations/labs are used to demonstrate application. Actual images will be included for analysis.
Prerequisite(s): RADT1108, PHYS1105, MATH1114

RADT1144 Radiographic Procedures III 3 2/1/0
This course will provide the student with the knowledge necessary to perform radiographic procedures relative to traumatic injury, surgical and portable radiography. The student will be introduced to the highly specialized studies of the central nervous system, cardiovascular system and cross-sectional imaging. Special imaging equipment, physical settings and techniques used in these highly specialized studies will also be included.
Prerequisite(s): RADT1124

RADT1148 Clinical Radiography I 6 0/0/6
The emphasis of this clinical rotation will be on radiographic positioning and manipulation of radiographic equipment and accessories, related to radiography of the thoracic and abdominal viscera, upper and lower extremity, shoulder girdle, pelvis, upper GI, lower GI and biliary system.
Prerequisite(s): RADT1108; **Corequisites**: RADT1114, RADT1140

RADT1158 Clinical Radiography II 6 0/0/6
This clinical course emphasizes the basic radiographic procedures and positioning related to the digestive system, urinary system, the bony thorax and the vertebral column. The student will continue to acquire and build skills in performing radiographic procedures and positioning related to the thoracic and abdominal cavities and the upper and lower extremities including the shoulder girdle and the pelvis. The student is also introduced to skull radiography, surgical procedures, radiographic exposure factors and off peak (i.e. evening and weekend) clinical hours.
Prerequisite(s): RADT1148; **Corequisite**: RADT1124

RADT1168 Clinical Radiography III 6 0/0/6
This clinical course emphasizes the basic radiographic procedures and positioning related to the skull, facial bones, paranasal sinuses and detailed areas of the skull. The clinical experience provides an opportunity to working with increased independence.
Prerequisite(s): RADT1158; **Corequisite: RADT1144**

RADT2222 Imaging Equipment 3 2/1/0
This course is designed to establish a knowledge base in radiographic, fluoroscopic, mobile and tomographic equipment (including computed tomography) requirements and design including circuitry of the x-ray machine. The content will also provide a basic knowledge of quality control. Computer applications in the radiologic sciences related to image capture, display, storage and distribution are presented.
Prerequisite(s): RADT1132, RADT1140

RADT2244 Legal/Ethical Issues in Rad Tech 3 3/0/0
Content is designed to provide a fundamental background in ethics. The historical and philosophical basis of ethics as well as the elements of ethical behavior will be discussed. The student will examine a variety of ethical issues and dilemmas found in clinical practice. An introduction to legal terminology, concepts and principles will also be presented. Topics will include misconduct, malpractice, legal and professional standards and the ASRT scope of practice. The importance of proper documentation and informed consent is emphasized.
Prerequisite(s): None

RADT2248 Clinical Radiography IV 6 0/0/6
This clinical course provides the student with the opportunity to function more independently in all areas of basic radiography and to develop clinical skills in regular radiographic areas and procedures, with continuing experience in trauma and surgical procedures. The student will be exposed to special procedures and will begin rotations through the specialized areas of nuclear medicine, radiation therapy, computerized tomography, ultrasound and magnetic resonance imaging.
Prerequisite(s): RADT1168

RADT2250 Radiographic Pathology 3 3/0/0
This course is designed to introduce theories of disease causation and the pathophysiologic disorders that compromise healthy systems. Etiology, pathophysiologic responses, clinical manifestations, radiographic appearance and management of alterations in body systems will be presented.
Prerequisite(s): BIOL2232

RADT2258 Clinical Radiography V 7 0/0/7
This clinical course emphasizes the development of independence, discretion and judgment while performing basic radiographic procedures. It provides the student with the opportunity to function as a nearly registry eligible radiographer. The student is expected to correlate all clinical and didactic experiences while demonstrating a high degree of proficiency and efficiency.
Prerequisite(s): RADT2248

RADT2280 Board Review 2 2/0/0
This course is designed to prepare the student to write the national board exam administered by the American Registry of Radiologic Technologists (ARRT). A review of all course work presented in the program with an emphasis on the ARRT exam specifications will be presented.
Prerequisite(s): All program coursework or program director approval.

REFR1102 Refrigeration Principles 3 3/0/0
This course covers the theory, operation and service procedures of the basic refrigeration system including its four main components: compressor, condenser, evaporator, metering device and domestic refrigeration. Student will develop troubleshooting techniques using computer and Omnidata refrigerator simulators.
Prerequisite(s): None

REFR1104 Refrigeration Lab 4 0/4/0
This course covers working with the tools and equipment of the refrigeration trade. The student receives hands-on experience working with refrigeration tubing, refrigerators, freezers and operation of refrigeration and electrical Omnidata computer-operated simulators.
Pre/Corequisite(s): REFR1102

REFR1106 Electrical Fundamentals 3 3/0/0
This course covers electrical theory of Ohm's law, inductance, capacitance and electrical design, operation, use and construction of domestic refrigeration and electric motors.
Prerequisite(s): None

Course #	CourseTitle	CR	Lec/Lab/OJT

REFR1108 Electrical Lab 3 0/3/0
This course covers the hands-on application of electrical theory and practice of Ohm's law, inductance, capacitance, control operation, building of a startbox and troubleshooting domestic refrigeration while using computers and various tools and meters in the service field.
Pre/Corequisite(s): REFR1106

REFR1110 Refrig, A/C and Htg Prin 3 3/0/0
This course covers refrigeration theory of domestic refrigeration and introduction theory to commercial refrigeration, residential heating and air conditioning equipment, including controls and accessories.
Prerequisite(s): REFR1104, REFR1108

REFR1112 Refrig, A/C and Htg Lab 3 0/3/0
This course covers the operation and service procedures of domestic refrigeration and an introduction to residential heating and air conditioning and commercial refrigeration equipment.
Pre/Corequisite: REFR1110

REFR1113 Refrigeration Electrical Circuits Fundamentals 3 3/0/0
This course will consist of the design of electrical drawings and troubleshooting of different refrigeration and heating equipment schematics and wiring diagrams.
Prerequisite(s): REFR1106, REFR1108; Corequisite: REFR1112

REFR1115 Refrigeration Electrical Circuits Lab 3 0/3/0
This course will consist of the design of electrical drawings and troubleshooting of different refrigeration and heating equipment and component schematic and wiring diagrams.
Prerequisite(s): REFR1106; Corequisite: REFR1112

REFR1130 Refrigeration Mgmt 2 2/0/0
This course covers refrigerant management techniques approved by EPA Section 608 of the Clean Air Act. We will cover environmental concerns, recovery, recycling and reclamation of different refrigerants. After completion the students will be give the option of taking the EPA Refrigerant Certification Exam.
Prerequisite(s): None

REFR1140 Gas Heating 2 1/1/0
This course covers heating theory of gas furnaces. The student receives basic hands-on service experience with gas-fired furnaces and refining of troubleshooting techniques with gas furnace simulators.
Prerequisite(s): REFR1108

REFR1148 Resid AC, Theory, Applic, Cert 6 3/3/0
This course covers residential air conditioning systems including window, through-the-wall, package-unit and split-system. The student receives classroom theory of air conditioning and hands-on service techniques, installation of split system and training for refrigerant certification. EPA Refrigerant Certification testing will be offered in the course.
Prerequisite(s): REFR1110, REFR1112, REFR1114

REFR2202 Commercial Refrig and A/C Prin 4 4/0/0
This course covers principles of heat loads, equipment sizing and placement, piping and use of accessories as applied to larger air conditioning and refrigeration systems. Safety is emphasized.
Prerequisite(s): REFR1110

REFR2204 Commercial Refrig and A/C Lab 3 0/3/0
This course covers the practical application to gain experience in installation of larger refrigeration and air conditioning equipment. Operation, troubleshooting and repair are included. Safety is emphasized.
Pre/Corequisites: REFR1112, REFR2202

REFR2206 Commercial Electrical Prin 3 3/0/0
This course covers fundamentals of commercial refrigeration and air conditioning electrical application to larger systems. Includes operation of switching and controlled devices. Safety is emphasized.
Prerequisite(s): REFR1113

REFR2208 Commercial Electrical Lab 3 0/3/0
This course covers the practical application of electrical principles to air conditioning and refrigeration systems, including troubleshooting, repairing for larger systems from classroom drawings. Safety is emphasized.
Pre/Corequisite(s): REFR1115, REFR2206

REFR2210 Adv Refrigeration Prin 3 3/0/0
This course prepares students for more advanced lab sessions on commercial refrigeration systems. Students need to have a very good understanding of commercial refrigeration and electrical systems. Safety is emphasized.
Prerequisite(s): REFR2202

REFR2211 Advanced Refrigeration Principles 4 4/0/0
This course prepares students for more advanced lab sessions on commercial refrigeration systems. Students need to have a very good understanding of commercial refrigeration and electrical systems. Safety is emphasized.
Prerequisite(s): REFR2202, REFR2204

REFR2212 Adv Refrigeration Lab 3 0/3/0
This course gives students the opportunity to work on more complicated refrigeration systems through individual or paired groups on field trips, off-site meetings and hands-on projects. Safety is emphasized.
Prerequisite(s): REFR2202, REFR2204

REFR2213 Advanced Electrical Theory 3 3/0/0
This course covers the electrical principles and schematics used in industrial, hospital and supermarket refrigeration systems. Safety is emphasized.
Prerequisite(s): REFR2206, REFR2208

REFR2214 Adv Electrical Applications 4 2/2/0
This course covers the application of electrical principles to the more complex systems found in warehouse, hospital and supermarket refrigeration systems. Safety is emphasized.
Prerequisite(s): REFR2208

REFR2215 Advanced Electrical Applications 3 0/3/0
This course covers the application of electrical principles used in industrial, hospital and supermarket refrigeration systems. Safety is emphasized.
Prerequisite(s): REFR2206, REFR2208

REFR2216 Refrigeration Internship 3 0/0/3
Projects, reports and discussions are coordinated to relate to the student's employment situation. Employment in an approved refrigeration/air conditioning occupation. A training agreement and an evaluation are required of each student.
Prerequisite(s): Instructor approval

REFR2220 HVAC Troubleshooting 3 1/2/0
This course is designed to build student confidence in troubleshooting heating, ventilating, air conditioning systems and motor control circuits. The student will learn troubleshooting techniques using simulators and computer-generated simulators and actual air conditioning equipment.
Prerequisite(s): REFR1108

REFR2222 Electronic Controls 3 1/2/0
This course covers the fundamentals of solid-state control devices thermostats, vacuum indicators and programmable logic controllers, as applied to HVAC-R industry.
Prerequisite(s): REFR1106

REFR2240 Oil Heat 2 1/1/0
This course covers oil heat theory primarily of the gun-type burner. The student receives hands-on experience in testing, analyzing and adjusting oil furnaces.
Prerequisite(s): None

REFR2242 Heat Load Estimating 2 1/1/0
This course covers heat and cooling load estimating for residential and light commercial buildings. Different manufacturer worksheets, the standard manual J and computerized methods of estimating are used.
Prerequisite(s): None

SALE1162 Product Knowledge Development 3 2/1/0
This course is designed to assist students in developing product knowledge, determining selling tactics, developing internal/external sales support, identifying training needs, prospecting sources, comparing internal/external competition and service policies.
Prerequisite(s): None

SALE1164 Personal Finance 2 2/0/0
This course covers personal finance as it applies to everyday financial activities. Students are made aware of the importance of financial planning, risk management, budgeting and how and when to cut costs, save and invest.
Prerequisite(s): None

SFP1100 Principles of Sustainability 3 3/0/0
Meets MNTC Goal Area 10. This course is a study of sustainability utilizing the principles of permaculture and holistic resource management.
Prerequisite(s): None

SFP1200 Farm Ecology 3 3/0/0
This course will provide an analysis of natural ecosystem sustainability relative to farms and food production. Nutrient cycling, energy flows, biodiversity and population control will be covered.
Prerequisite(s): None

SFP1301 Artisan Food and Value - Added Agriculture 3 3/0/0
This course introduces students to a variety of artisan food crafts and the evolving trend of gastropreneurism. Students will investigate a variety of value-added agricultural enterprises.
Prerequisite(s): None

SFP1302 Forage and Crop System 5 5/0/0
This course introduces students to sustainable soil fertility management practices and strategies, such as cover cropping, crop rotation, conservation tillage and cultivation, compost production and use and animal stacking. The course will also cover the foundations of plant science and forage plant identification.
Prerequisite(s): None

SFP1304 Practical Farm Skills 2 2/0/0
This course prepares students for the evaluation and practice of safe tractor and agricultural equipment operation. The proper techniques for the maintenance of agricultural equipment will be discussed. Students will learn livestock husbandry, including fencing and animal handling.
Prerequisite(s): None

SGDT1100 Cmpt Layout and Design I 4 2/2/0
This course introduces the student to the operation of industry standard sign software and its application to sign design. The course will focus on software usage for the fundamentals of sign layout and vinyl design with letter cutting.
Prerequisite(s): None

SGDT1102 Freehand Lettering 4 1/3/0
This course is an introduction to the art and skill of freehand lettering. This course will emphasize basic letter layout and structure, brush control and paint application for various letter styles.
Prerequisite(s): SGDT1100

SGDT1104 Banners and Showcard Tech 2 1/1/0
This course will introduce students to the fundamentals of effective showcard/banner layout and letter application. Students will letter with different mediums on a variety of surfaces such as paper, showcard and vinyl.
Prerequisite(s): SGDT1102

SGDT1106 Wall Graphics 2 1/1/0
Students in this course will be exposed to lettering application on a variety of wall surfaces. Emphasis will be on working safely from ladders and scaffolding in varying environmental conditions.
Prerequisite(s): SGDT1102

SGDT1108 Specialty Sign Applic I 2 1/1/0
This course will introduce students to a variety of sign enhancements. The emphasis will be on developing air brushing skills along with glass etching techniques.
Prerequisite(s): SGDT1100

SGDT2200 Cmpt Layout and Design II 4 2/2/0
This course covers advanced software application for the development of sign layout and graphics. Students will be exposed to digital print and cut techniques on vinyl, as well as inputting and digitizing images.
Prerequisite(s): SGDT1100

SGDT2202 Commercial Signage 6 2/4/0
This course covers a variety of sign preparation and decorating techniques for commercial sign applications. This course will emphasize the design and production of effective signage on a variety of surfaces.
Prerequisite(s): SGDT1106, SGDT2200

SGDT2204 Window Graphic Tech 2 1/1/0
This course covers surface preparation of glass substances along with interior and exterior applications. The emphasis of this course will be to decorate on the surface and in reverse with paint and vinyl.
Prerequisite(s): SGDT1100, SGDT1102

SGDT2206 Vehicle Graphic Tech 2 1/1/0
This course will introduce students to design and layout on a variety of vehicle applications. The emphasis will be graphic development and lettering for visual impact on a "rolling billboard."
Prerequisite(s): SGDT1102, SGDT1108, SGDT2200

SGDT2208 Specialty Sign Applic II 2 1/1/0
This course will introduce students to advanced sign enhancements. The emphasis will be on surface gold leaf application, sand-blasting on wood and high density foam applications.
Prerequisite(s): SGDT1102, SGDT1108, SGDT2200

SOC1111 Intro to Sociology 3 3/0/0
Meets MNTC Goal Areas 2, 5 and 7. This course is an introduction to the study of societies and of the social factors that influence individual and group behavior. The course incorporates sociological and other critical thinking models for the investigation of various components of social life: culture, socialization, social organization, social stratification, social institutions, populations dynamics and social change.
Prerequisite(s): None

SOC1113 Social Problems 3 3/0/0
Meets MNTC Goal Areas 5 and 9. This course stresses acquiring an enriched understanding of social issues and prospects for improving them. Students will investigate social trends and factors affecting social problems, contrast sociological perspectives of social problems, deal constructively with information and ideas associated with social issues, examine the ethical dimensions inherent in problem definition and intervention design and define personal and public responsibilities in relation to select social issues. Social issues covered may include parenting and family issues; crime, delinquency and violence; aging, health and health and health care issues; poverty and inequality; cultural pluralism; urban growth and population; environmental issues; sexual issues; and global issues.
Prerequisite(s): None

SOC1114 Sociology Service Learning 1 1/0/0
Meets MNTC goal Area 5. This course emphasizes an enriched understanding of social issues and prospects for improving them through direct work/research in a sociological setting. In an actual community setting, students will participate in and make observations of social intervention. These observations will be critically processed in relation to key sociological concepts. The nature of service learning usually necessitates that students be prepared to be off-campus and to participate outside of regular class hours (20-25 hours). Students may need transportation to field sites. Additional expenses may be incurred. Course may be repeated for credit.
Prerequisite(s): Completed or current enrollment in a sociology or women's studies course or consent of instructor.

SOC2118 Sociology of Aging 3 3/0/0
Meets MNTC Goal Areas 2, 5 and 7. This course examines the societal, economic and political aspects of aging. The course will focus on defining the field with theories of aging and trends in population aging, social aspects of aging by examining the changes in roles and relationships that occur as people age, care of the aging by looking at health and healthcare needs of older people and end of life issues and the economic and political aspects of aging.
Prerequisite(s): College level reading and writing skills

SOC2211 Marriage and Family 3 3/0/0
Meets MNTC Goal Area 5. The course examines the multitude of family and intimate relationship structures evident both now and historically. It covers how family structures and processes impact individuals and how family structures are shaped by social institutions and cultural norms and values. Students investigate the factors which encourage stable intimate relationships verses those which encourage dysfunction and pathology. It is recommended that students have completed three credits of fundamental sociology and possess strong reading and writing skills.
Prerequisite(s): None

SOC2213 Sociology of the Family 3 3/0/0
Meets MNTC Goal Areas 5 and 7. Families will be examined from the sociological perspective and will be compared across time and cultures. Family relationships, family structure, the effects of race, class, gender, age, social institutions and social policy will be explored in this course. Integral to this course are comprehensive discussions on topics such as dating, cohabitation, marriage/partnering, employment, domestic violence, parenting, divorce, remarriage/re-partnering and elder care. This course provides understanding of the family, family roles and the impact on the individual. Understanding public and private, platonic and intimate relationships can assist in the development of tolerance toward others.
Prerequisite(s): None

SOC2215 Criminology 3 3/0/0
Meets MNTC Goal Areas 2 and 5. The course will provide a thorough overview of the field of criminology. A study of the theories which attempt to define and explain crime, criminal behavior and society's reactions to crime, including a focus on juvenile delinquency, the judicatory process and penology.
Prerequisite(s): None

SOC2216 Minority Group Relations 3 3/0/0
Meets MNTC Goal Areas 5 and 7. This course examines the broad and inclusive concept of diversity, a topic which in the United States is full of ambiguities and conflicts. It endeavors to combine subjective interpretations of diversity with sociological perspectives to better prepare students to participate in and appreciate the increasingly diverse culture in which we live. Commonly cited features of diversity which will receive primary coverage are race and ethnicity.
Prerequisite(s): None

SOC2217 Rural Sociology 3 3/0/0
Meets MNTC Goal Areas 5 and 7. The course is a sociological study of the forces which have transformed the rural setting and impact future trends in rural America. The course will also focus on the diverse cultural heritage contributing to the rich cultural mosaic found in rural scenarios.
Prerequisite(s): None

SOC2220 Food, Culture and Society 3 3/0/0
Meets MNTC Goal Areas 5 and 7. Examines the social and cultural dimensions of the production, preparation and consumption of food. Discussion of a wide variety of topics, including food citizenry, sustainable food production, hunger, food sovereignty, food choice and options, social movements, social justice, policy and legislation, food and gender, food and social class, food and race and ethnicity, agroecology and economic issues.
Prerequisite(s): College level reading and writing skills

SOC2222 Sociology of Agriculture 3 3/0/0
Meets MNTC Goal Area 5. The central theme of this course is to understand the institutions and processes critical to farm success. Students will utilize sociological perspectives to study the many aspects of a local food system.
Prerequisite(s): None

SPAN1111 Beg Spanish 4 4/0/0
This course provides basic instruction in the correct form and use of the Spanish language. Study concentrates on oral and written comprehension of simple Spanish, verbal expression of personal themes, pronunciation and grammar.
Prerequisite(s): None

SPAN1112 Beg Spanish II 4 4/0/0
This course provides continued basic instruction in the correct form and use of the Spanish language. Study concentrates on oral and written comprehension of simple Spanish, verbal expression of personal and extended themes, pronunciation and grammar.
Prerequisite(s): SPAN1111 or by placement test

Course #	CourseTitle	CR	Lec/Lab/OJT

SPAN1151 Vocational Spanish I 1 1/0/0
This course provides students with the opportunity to use Spanish for specific communicative goals within a vocational focus. The situational approach will focus on words and phrases needed to cope with everyday workplace situations and will vary according to class need. This course is designed for students with little or no prior language experience and is Part 1 of a 3-part advancing sequence. This course may be taken more than once as the topics change. Topics may be: Survival Spanish for Probation Officers; Survival Spanish for Paramedics and EMTs; Survival Spanish for Law Enforcement Officers; Emergency Spanish for Paramedics and EMTs; Survival Spanish for Correctional Staff; Emergency Spanish for Firefighters; Survival Spanish for Dental Staff; Survival Spanish for School Administrators, Teachers and Support Staff; Office Spanish for Secretaries and Receptionists; Doing Business in Latin America; Spanish for the Physician's Office; or Spanish for Nursing. Only one vocation will be emphasized per section. This course is not intended to meet the language requirement of a particular course of study.
Prerequisite(s): None

SPAN1152 Vocational Spanish II 1 1/0/0
This course provides students with the opportunity to increase their use of Spanish for specific communicative goals within a vocational focus. The situational approach will focus on additional words and phrases needed to cope with everyday survival situations and will vary according to class need. This course is designed for students with little Spanish language experience and is Part 2 of a 3-part advancing sequence. This course may be taken more than once as the topics change. Topics may be: Survival Spanish for Probation Officers; Survival Spanish for Paramedics and EMTs; Survival Spanish for Law Enforcement Officers; Emergency Spanish for Paramedics and EMTs; Survival Spanish for Correctional Staff; Emergency Spanish for Firefighters; Survival Spanish for Dental Staff; Survival Spanish for School Administrators, Teachers and Support Staff; Office Spanish for Secretaries and Receptionists; Doing Business in Latin America; Spanish for the Physician's Office; or Spanish for Nursing. Only one vocation will be emphasized per section. This course is not intended to meet the language requirement of a particular course of study.
Prerequisite(s): SPAN1151 or consent of instructor

SPAN1153 Vocational Spanish III 1 1/0/0
This course provides students with the opportunity to increase their use of Spanish for specific communicative goals within a vocational focus. The situational approach will focus on enlarging the number and complexity of words and phrases needed to cope with everyday survival situations and will vary according to class need. This course is designed for students with some Spanish language experience and is Part 3 of a 3-part advancing sequence. This course may be taken more than once as the topics change. Topics may be: Survival Spanish for Probation Officers; Survival Spanish for Paramedics and EMTs; Survival Spanish for Law Enforcement Officers; Emergency Spanish for Paramedics and EMTs; Survival Spanish for Correctional Staff; Emergency Spanish for Firefighters; Survival Spanish for Dental Staff; Survival Spanish for School Administrators, Teachers and Support Staff; Office Spanish for Secretaries and Receptionists; Doing Business in Latin America; Spanish for the Physician's Office; or Spanish for Nursing. Only one vocation will be emphasized per section. This course is not intended to meet the language requirement of a particular course of study.
Prerequisite(s): SPAN1152 or consent of instructor

SPAN2211 Intermediate Spanish 4 4/0/0
Meets MNTC Goal Area 8. This is the first semester of Intermediate Spanish. Reading, writing, listening and speaking continue to be developed through a focus on historic, political, cultural and artistic expressions of the Spanish-speaking world. Grammar from Beginning Spanish 1112 is lightly reviewed. New grammatical skills include the perfect tense of the indicative mood and simple tenses of the subjunctive mood.
Prerequisite(s): SPAN1112 or consent of instructor

SPAN2212 Intermediate Spanish II 4 4/0/0
Meets MNTC Goal Area 8. This is the second semester of Intermediate Spanish. Reading, writing, listening and speaking continue to be developed through a focus on historic, political, cultural and artistic expressions of the Spanish-speaking world. Grammar from Intermediate Spanish 2211 is further developed to include the simple and perfect tenses of the indicative and subjunctive moods.
Prerequisite(s): SPAN2211 or consent of instructor

SPCH1112 Small Group Communication 3 3/0/0
Meets MNTC Goal Areas 1 and 2. This course focuses on communication issues in small groups and the important role that small-group work plays in business today. Emphasis is on improving communication skills for successful teamwork, group cohesiveness and the responsibility for group goals and tasks. Students will be provided with opportunities to build their group communication skills through practice.
Prerequisite(s): None

SPCH1114 Intro to Public Speaking 3 3/0/0
Meets MNTC Goal Area 1. This course clarifies the process of oral communication, clarifies the basic principles of public speaking and allows the student to increase the application of these principles both while speaking and while listening.
Prerequisite(s): Assessment into ENGL1101 or successful completion of ENGL0050

SPCH1150 Interpersonal Comm 3 3/0/0
Meets MNTC Goal Area 1. This course will focus on helping the student improve his/her ability to communicate effectively in one-to-one dyadic encounters by providing experience-based instruction. Extensive in-class and out-of-class analyses allow the student to examine his/her own and other's informal social interactions. The long-term goal is for the student to be able to apply interpersonal communication theories to daily interactions and draw his/her own conclusions about the effectiveness of interpersonal communication skills in the specific interaction.
Prerequisite(s): Assessment into ENGL1101

SPCH1160 Forensics 1 1/0/0
M State's competitive speech program provides practical speaking experience for intercollegiate tournaments and on-campus activities. The purpose of forensics is to provide a wide range of opportunities designed to increase interpersonal communications skills, public speaking and interpretation abilities.
Prerequisite(s): None

SPCH2216 Intercultural Comm 3 3/0/0
Meets MNTC Goal Area 7.This course is designed for anyone whose life is likely to include encounters with people from cultures or co-cultures different from his/her own. That includes everyone. The course will deal both with communication between international cultures and communication between co-cultures within the United States.
Prerequisite(s): ENGL1101

SPCH2218 Oral Interpretation 3 3/0/0
Meets MNTC Goal Area 6.This course is intended to introduce students to the oral delivery of literature, the principles and techniques of selecting appropriate literary selections and the meaning of literature.
Prerequisite(s): SPCH1113 or SPCH1114

SUPL1110 Budget and Financial Mgmt 3 3/0/0
This course is designed for non-financial personnel who need to understand the basic theories of finance and apply them to practical business decisions. Key topics include learning the generally accepted accounting and budgeting principles, financial statement analysis, analysis of return on investment - cost/benefit ratios, analysis of annual reports.
Prerequisite(s): None

SUPL1112 Advanced Budget and Financial Management 3 3/0/0
This course is designed for supervisory personnel who need to understand the basic theories of management accounting and apply them to practical business decisions. Course content includes a study of the job order costing, cost-volume profit analysis, financial flexible budgets and standard costs. This course will focus on strategic decision-making for supervisory personal from the user's perspective.
Prerequisite(s): SUPL1110

SUPL1118 Lead and Facilitate Teams 3 3/0/0
This course will address the role of supervisor, manager and leader as a leader and facilitator of work teams. Topics will include planning work teams, creating effective team interaction, identifying characteristics of successful teams and demonstrating skills and behaviors of both team leader and team member.
Prerequisite(s): None

SUPL2212 Linking People and Productivity 3 3/0/0
Participants will learn leadership skills that positively impact organizational productivity. They will learn to use the skills of feedback, recognition, trust, conflict resolution, team building and others. It is through the use of these skills and behaviors that leaders will create and build effective relationships, thus strategically improving the bottom line. Real-world examples and practical applications engage participants and help them apply these skills to their own leadership responsibilities.
Prerequisite(s): None

SUPL2214 Supervisory Ldrship Intern 3 0/0/3
This course provides participants with on-the-job opportunities to explore and/or practice specific areas of interest related to supervisory leadership. Internship opportunities fall under five broad categories: quality planning and implementation; project management; human relations and resource management; workplace improvement; and financial analysis and budgeting processes.
Prerequisite(s): Approval of plan(s) developed by the participant

SW2250 Intro to Social Work/Social Welfare 3 3/0/0
This course introduces the historical and philosophical bases of social welfare services and current social issues and problems. Programs and agencies developed to deal with these issues will be examined. Students will be introduced to social work theories and intervention methods used by social workers. Career paths in social work will be identified.
Prerequisite(s): None

TECH1104 Data Communications 2 1/1/0
This course provides an introduction to data communications. Topics include overview of transmission systems, standards and protocols, communication software, communication hardware, local and wide area networks.
Prerequisite(s): None

TECH1106 Adv Data Communications 2 1/1/0
This course is a study of ethernet LAN and WAN problems and solutions. The course covers LAN ethernet switch and WAN router specifications and configuration. The student will practice configuration and troubleshooting of networking equipment.
Prerequisite(s): TECH1104

TECH1110 Pole Climbing 2 0/2/0
This course will examine safe pole climbing procedures so the student will become proficient in ascending, performing and descending poles.
Prerequisite(s): None

TECH1120 Cabling and Termination 4 1/3/0
This course covers fundamental principles for cable splicing. Topics include cable construction, basics of transmissions, color coding, cable lay-ups and closures and splicing of cables used in the telephone and cable television industries. The student will learn procedures in installing cable TV and telephone drop wire to customer homes, including proper grounding and grounding techniques, safety, connector installation,

cable routing, methods of attachment, dwelling entry and the types of drop cable and their specific uses. Troubleshooting and maintenance of customer drops are discussed.
Prerequisite(s): None

TECH1126 Telecom Outside Plant Const 4 1/3/0
This course covers basic construction of a pole line, aerial suspension strand, underground cable construction, locating of buried plant and aerial plant cable construction for the telephone and cable television industries.
Prerequisite(s): None

TECH1130 Fiber Optics 2 1/1/0
This course covers fiber optics starting with transmission of light to installation and repair of operating systems. A student will be able to analyze problems in a fiber optic system and make effective repairs using appropriate test equipment.
Prerequisite(s): None

TECH1140 Home Entertainment and Design 3 1/2/0
This course will provide the student with the knowledge and skills needed to design and install audio, video, computer network and surround sound systems in the home.
Prerequisite(s): None

TECH1150 Telecom Customer Service 2 2/0/0
This course is designed to help the student be aware of and improve on everyday relationships with customers, co-workers, supervisors and the general public as they pertain to the telecommunications workplace. This course is a study of the appropriate attitudes, images and perceptions that should concern a technician who is employed with a company that is in the public eye. Emphasis is on dealing with the public and co-workers, representing your employer and ethical behavior on and off the job.
Prerequisite(s): None

TECH1190 Telecom Srvc and Installation Intern 3 0/0/3
This course provides the student with the opportunity to utilize the knowledge and skills acquired during his/her recent education/training at an approved telecommunications site.
Prerequisite(s): TECH1120 or TECH1130

TECH2200 BISCI Installer Level I Cert 2 1/1/0
This course covers the codes and standards that have been set up by the TIA/EIA for telecommunications network cabling in public and private facilities. Topics include standards and codes for structured cabling specifications, firstopping, bonding, grounding, terminating, labeling, testing and safety in the installation of voice, data and video networks.
Prerequisite(s): None

TECH2230 Telecommunications Systems 3 2/1/0
In this course the student looks at different types of telecommunication systems from the plain old telephone service to the new digital hybrids. The student will become familiar with design and installation of analog and digital systems as they pertain to the telecommunications world.
Prerequisite(s): TECH1120 or TECH1130

TECH2240 Broadband Sys Dsgn and Analysis I 3 1/2/0
In this course the student will activate, test and balance a cable television system using various types and brands of equipment. The student will become familiar with the equipment used in signal transportation and learn the techniques involved with balancing and troubleshooting various types and brands of line amplifiers using a variety of test equipment. The student will learn design of a complete CATV system - feeder and trunk lines with proper location of all active and passive devices.
Prerequisite(s): TECH1120

TECH2242 Broadband Sys Dsgn and Analysis II 3 1/2/0
In this course the student will design and lay out a cable television system to industry specifications, become familiar with headend signal processing equipment and techniques, troubleshoot a broadband cable television system and use various test equipment to monitor system performance.
Prerequisite(s): TECH2240

TECH2250 Business Com Sys I 3 1/2/0
In this course the student will learn the fundamentals of the business communication systems used in today's fast-paced business world. The student will learn design, installation and maintenance of different types of analog and digital business communication systems.
Prerequisite(s): TECH1120

TECH2252 Business Com Sys II 3 1/2/0
In this course the student will perform site survey for the installation and activation of both analog and digital voice mail systems. After completion of survey, student shall design a workable solution for different customers needs, ranging from small business to large corporate customers.
Prerequisite(s): TECH2250

TECH2270 Adv Electronic Communications 3 2/1/0
This course will deal with microwave-multiplex theory, installation, repair and maintenance; the study of transmission and reception of satellite, TV and microwave signals; and the concepts of cellular communications switching and transmission. The student will also learn how a composite signal is developed.
Prerequisite(s): ELTR1180

TECH2280 Central Office Fundamentals 3 1/2/0
This course covers central office design, installation and maintenance. Power plants and grounding are also covered.
Prerequisite(s): TECH2250

TECH2290 Telecommunications Tech Intern 3 0/0/3
This course provides the student with the opportunity to utilize the knowledge and skills acquired during his/her education/training at an approved telecommunications site.
Prerequisite(s): TECH2240 or TECH2250

TECH2292 Telecom Engineering Intern 1 0/0/1
This course provides the student with the opportunity to utilize the knowledge and skills acquired during his/her recent education/training at an approved telecommunications site.
Prerequisite(s): TECH2240 or TECH2250

TECH2294 Telecommunications Tech Intern 2 0/0/2
This course provides the student with the opportunity to utilize the knowledge and skills acquired during his/her education/training at an approved telecommunications site.
Prerequisite(s): TECH2240 or TECH2250

THPY1110 Massage Tech/Ethics 3 2/1/0
This course provides students with an in-depth knowledge of massage techniques. Emphasis will be on the application of the basic massages stokes and their variations. Students will learn proper draping and positioning techniques and recommended client protocol. In regards to ethics, a variety of topics will be discussed and explored in order to help the students form their own written code of ethics.
Prerequisite(s): None

THPY1118 Kinesiology 3 2/1/0
This course teaches students to identify the location and movements of skeletal muscles. Students will identify bones and boney landmarks. They will learn muscle origin and insertion using specific boney landmarks as points of anatomical reference. They will learn directional terms and terms of movement. Students will learn to identify and describe the movement of each muscle.
Prerequisite(s): THPY1110

THPY1123 Integrative Massage 2 1/1/0
This course introduces students to a variety of specialized modalities of massage. Specialization in the massage industry increases the marketability of therapists and is strongly recommended. Students will be familiar with the basic principles of each modality presented. In addition to lectures presented by the instructor, students will be responsible for researching modalities of particular interest to them.
Prerequisite(s): None

THPY1130 Advanced Massage 2 1/1/0
This course prepares massage students to execute advance massage techniques. Students will learn optional techniques available to clients including abdominal massage, facial massage and massage of the gluteals. Massage for special populations will be discussed, as well including massage for the elderly and chair massage.
Prerequisite(s): THPY1110

THPY1135 Deep Tissue Massage 2 1/1/0
This course prepares the massage student to apply deep muscular therapy techniques. Emphasis will be placed on the use of proper body mechanics and the use of proper techniques to deliver deep tissue massage safely. Trigger point therapy will be used extensively in this course. Students will learn the use of massage tools. Individual muscles will be isolated and massaged with parallel and cross fiber techniques.
Prerequisite(s): THPY1118

THPY1142 Student Clinic 3 0/3/0
This course provides students with an opportunity to develop the practical skills necessary to administer professional massage therapy treatments. In addition to performing massage treatments on the general public, students will also perform seated chair massage at scheduled on-site events as arranged by the instructor. This course provides students with an opportunity to develop the practical learned skills needed to work as a professional massage therapist.
Prerequisite(s): THPY1110

THPY1146 Certification Prep 2 2/0/0
This course is designated to prepare the students to take the National Certification Examination (NEC) issued by the National Certification Board of Therapeutic Massage and Bodywork (NCBTMB). Students will review anatomy, physiology, kinesiology, clinical pathology, massage theory, massage assessment and practice, adjunct techniques and business practices. Students will be taught to identify the areas in which they need the most review and use outside texts to help them maximize their learning potential. A study guide and sample test questions will be used to exemplify the NCE. Students will be encouraged to apply to take the National Certification Examination after they receive their diploma.
Prerequisite(s): THPY1135

THPY1148 Sports Massage and Hydro 2 1/1/0
This course covers the fundamentals of hydrotherapy and sports massage. Students will be taught to perform massage treatments specific to individual sports. The course addresses pre-, post- and event-sports massage techniques as well as rehabilitative massage for injuries and maintenance massage. Students will also be instructed on the use of hydrotherapy techniques. Hydrotherapy will address the application of water as treatment in each of its three forms in hot and cold treatments, hydrocollators, body wraps and salt glows. These techniques can be implemented into Swedish massage treatments and sports massage.
Prerequisite(s): None

Course #	CourseTitle	CR	Lec/Lab/OJT

THPY1150 Business Development 2 2/0/0
This class will introduce the massage therapist to the business aspects of operating a massage practice. Topics include client scheduling, budgeting, bookkeeping, marketing and massage-related business issues. The course will detail client/therapist business concerns and help to prepare each student to identify and solve these concerns in a professional manner. Students will learn to write and execute a detailed, workable massage business plan.
Prerequisite(s): None

THPY1156 Massage Pathophysiology 3 3/0/0
This course discusses common pathologies that massage therapists are likely to encounter in their professional practices. It also discusses whether these conditions are indicated or contraindicated for massage and describes how they may be treated.
Pre/Corequisite(s): THPY1110

THTR1105 Beg Acting 3 3/0/0
Meets MNTC Goal Area 6. Development of basic acting skills and techniques through the use of acting exercises, improvisation and scenes from plays.
Prerequisite(s): None

THTR1111 Intro to Theater 3 3/0/0
Meets MNTC Goal Area 6. This course is intended for all students who desire a greater appreciation of theater as an artistic, cultural and social force. It would focus on major developments in western theater including theater architecture, use of sets, costumes and lighting and the changing roles of theater personnel (actors, playwrights, directors, designers and technicians). This course will use a textbook and augment the classroom lecture/discussion and student presentations with audio-visual aids, a field trip to other theaters and attending at least one performance of a play.
Prerequisite(s): None

THTR1112 Intro to Stagecraft 2 2/0/0
Meets MNTC Goal Area 6F. The study of the background of the technical theater. An overview of all aspects of theater including basic stagecraft, drafting, set building and technical direction.
Prerequisite(s): None

THTR1131 Acting Drama Lab 2 2/0/0
Meets MNTC Goal Area 6F. This course is intended to give students practical experience in performance in a dramatic production. Students will study a play for production and receive individual and ensemble coaching in acting techniques. A student must be cast in a production to register. This course may be repeated for credit.
Prerequisite(s): None

THTR1141 Stage Craft 2 2/0/0
Meets MNTC Goal Area 6F. This course is intended to provide students with practical experience in all aspects of technical theater. Students will have the opportunity to learn skills in set design and construction, lighting, properties, costuming, makeup and sound.
Prerequisite(s): None

TRNS1100 Intro to Shop Technology 4 3/1/0
This course is the study of occupational safety, shop orientation procedures, power and hand tool usage. The use of shop equipment applications, fasteners, measuring instruments, service literature, along with appropriate service department etiquette will be addressed. Four- and two-stroke engine theory along with their proper lubricants will be covered. All these will be taught and expressed with the PowerSports and Marine industry shop experience as a basis for study.
Prerequisite(s): None

TRNS1102 Intro to Transportation 2 1/1/0
This course is the study of occupational safety, shop operation procedures, power and hand tool use, shop equipment applications, fasteners, measuring instruments, service literature, general service knowledge, acceptable work habits, industry standards and expectations.
Prerequisite(s): None

TRNS1104 Transportation Electronics 3 2/1/0
Preparation for the electronic and computer-related courses that follow. The theory and operation of electricity, semi-conductors (transistors, diodes, light emitting diodes, fluorescent displays) and test instruments will be studied.
Prerequisite(s): None

TRNS1106 Engine Theory 2 2/0/0
This course covers the fundamentals of internal combustion engine operation, repair and maintenance, as well as procedures for removal, replacement, diagnosing, rebuilding and assembly. Proper tool and equipment application and failure diagnosis are emphasized in this course.
Pre/Corequisite(s): TRNS1102, TRNS1110

TRNS1108 Engine Service 3 0/3/0
This course covers the disassembly, diagnosis, measurement, service, assembly and adjustment of engines and components.
Pre/Corequisite(s): TRNS1106

TRNS1109 Fuel Systems I 4 2/2/0
This course covers the basics in many types of fuel systems used on current 2- and 4-cycle off-road/marine products. Training will be on most realms of models from high performance to standard output recreational equipment. The incorporation of fuel distribution systems is studied, along with the fuel make-up and properties. Included in this course will be practices of pre-delivery, inspection and troubleshooting along with seasonal service requirements. A great course to learn the basics of the fuel system.
Prerequisite(s): None

TRNS1110 Vehicle Sys Operating Tech 3 2/1/0
This course covers the theories of operation and the latest technologies that are used in the development and operation of current transportation vehicles. This course will utilize vehicle components and systems to deliver instruction in operating principles, nomenclature, application and diagnosis.
Prerequisite(s): None

TRNS1111 Electrical Systems I 4 2/2/0
This course introduces electrical systems used on powersports/marine equipment focusing primarily on ignition and electrical components. The students will learn the theories of ignition, induction, AC and DC circuit and electronic and computer controls. Emphasis will be on proper use of test equipment and system operation.
Prerequisite(s): None

TRNS1112 Heating Ventilation A/C 3 1/2/0
This course teaches the principles of air conditioning and its relationship to the heating system. The various types, the diagnosis of malfunctions, testing and repair are studied in the classroom. Practical experience is performed on live systems: recovering, evacuating, component replacement, charging and performance testing of the systems.
Pre/Corequisite(s): TRNS1102, TRNS1110

TRNS1114 Environmental Safety 1 1/0/0
This course covers the regulations of the Consumer Products Safety Commission, Environmental Protection Agency, Minnesota Pollution Control Agency, Occupational Safety and Health Administration and the management of hazardous wastes produced in industry.
Prerequisite(s): None

TRNS1116 Starting and Charging Sys 3 1/2/0
This course covers the service procedures necessary to repair charging and starting system components. Electrical principles are applied to test and troubleshoot complete circuits as well as components of each. Fundamental rebuilding principles and system analysis are emphasized. Safe battery testing and service are performed.
Pre/Corequisite(s): TRNS1102, TRNS1104

TRNS1118 Welding I 2 0/2/0
This class introduces the students to welding safety, welding and cutting fundamentals. The course provides the theory of welding and the training to develop the necessary skills to cut and weld metal.
Prerequisite(s): None

TRNS1120 Welding II 1 0/1/0
This course teaches skills needed to weld metals in a variety of positions using various methods of welding. The class will also introduce aluminum welding.
Prerequisite(s): TRNS1118

TRNS1122 Shop Management 1 1/0/0
This course teaches students proper shop management procedures including parts ordering inventory, repair order writing, payroll employee-employer relations, customer relations and communication skills.
Prerequisite(s): None

TRNS1130 Career Exploration and Experience 1 0/1/0
This course is designed to provide basic knowledge to prospective students of the various career fields that are available to them with an emphasis on marine engine repair and powersports recreation and repair. Time will be spent shadowing current students in the Marine Engine Technology program and/or the PowerSports program to stress the viability of either of these two majors as a career choice.
Prerequisite(s): None

TRNS2108 Power Hydraulics 2 1/1/0
This course covers the theory and service of hydraulic systems used on a wide range of off-road applications. Power steering and power trim and tilt systems service will be performed. System troubleshooting, as well as component service, will also be included in this course.
Prerequisite(s): None

WELD1102 Weld Fundamentals 3 1/2/0
This course provides a basic understanding of the scope and importance of welding in our society, welding safety, basic joints, positions, processes and procedures. An introduction to SMAW (stick), GMAW (wire) and oxy-acetylene processes will be covered, utilizing lab exercises and classroom lecture.
Prerequisite(s): None

WELD1110 Blueprint Reading Symbols 2 2/0/0
This class provides an understanding of blueprints used within the welding technology setting. The student will develop skills for reading, understanding and interpreting weld symbols and their use in layout, production and assembly prints.
Prerequisite(s): None

WELD1112 Shielding Metal Arc Welding II 4 0/4/0
This advanced class includes welding thicker mild steel plate (3/8″-1″) in all positions using a variety of electrode groups. The student completes practical welding tests that are in accordance with the American Welding Society Program. Content also emphasizes application of metallurgy principles and related welding safety.
Prerequisite(s): WELD1102

WELD1124 Cutting Processes 1 0/1/0
This class introduces the principles and practices of cutting metals using oxy-acetylene (OAC), plasma arc (PAC) and air carbon arc (CAC-A) equipment.
Prerequisite(s): None

WINE1100 Introduction to Wine 3 3/0/0
Introduction to Wine is a basic foundation course in the area of Wine Studies. The course will help students understand the process of wine making and develop the senses necessary to evaluate wines. Students will study the classical wine varietals of the world and learn wine service techniques according to the professional standards of Sommelier.

Note: All persons enrolling must be of at least 21 years of age and have a photo ID as proof of age before enrolling.
Prerequisite(s): None

WINE1200 Food and Wine Pairing 2 2/0/0
Food and Wine Pairing will offer students the experience of seeing how different wines affect food and how food affects wine. Students will consider food cooking methods, textures, acid levels, taste and spice profiles as well as characteristics of wine and wine servings such as light, medium and heavy body, sweet versus dry, bubbles or no bubbles, chilled versus non-chilled, low or high alcohol and acid levels. Students will compare the old rules of pairing versus the new reality. The order of wine service guidelines will also be addressed.

Note: All persons enrolling must be of at least 21 years of age and present a photo ID as proof of age before enrolling.
Prerequisite(s): WINE1100

WINE1300 Old World Wines 2 2/0/0
Old World Wines will examine the wines from different countries such as France, Italy, Spain, Portugal, Germany, Central and Eastern Europe and the Eastern Mediterranean. Additional topics may include identifying the main wine regions, wine laws, wine varieties, history and geography/climate for producing grapes.

Note: All persons enrolling must be of at least 21 years of age and present a photo ID as proof of age before enrolling.
Prerequisite(s): WINE1100

WINE1400 New World Wines 2 2/0/0
New World Wines will examine wines from different countries such as the United States, Canada, Mexico, Chile, Argentina, Australia, New Zealand and South Africa. Additional topics may include identifying the main wine regions, wine laws, wine varieties, history and geography/climate for producing grapes.

Note: All persons enrolling must be of at least 21 years of age and present a photo ID as proof of age before enrolling.
Prerequisite(s): WINE1100

WMST1130 Women's Studies 3 3/0/0
Meets MNTC Goal Areas 5 and 7. An interdisciplinary study designed to enhance the student's understanding of women's cultural, social, historical, political and economic contributions and humanitarian achievements based on the historical and diverse societal setting.
Prerequisite(s): None

ZOO1122 Hematology and Coag 4 3/1/0
An introductory course for Medical Laboratory Technician students covering the production, maturation, function and abnormalities of blood cells and coagulation (stoppage of bleeding) to main body homeostasis. Routine hematology procedures to identify abnormal and immature cell and coagulation procedures to detect deficiencies and abnormal conditions of the clotting of blood are emphasized.
Prerequisite(s): Enrollment in MLT program or instructor approval

ZOO1123 Immunohematology 3 2/1/0
Introduction to the clinical area of blood banking. Principles of antigens on red blood cells and antibodies in serum of blood and the typing of and compatibility theory and laboratory procedures.
Prerequisite(s): BIOL1125 and enrollment in MLT program or instructor approval

ZOO1126 Urinalysis/Body Fluids 2 1/1/0
A laboratory course for students enrolled in the Medical Laboratory Technician Certificate Program. An overview of the urinary system including abnormalities and diseases. The collection, handling, storage, analysis of physical and chemical properties and study and identification of morphological elements of urine. Includes study of other body fluid s including cerebral spinal fluid.
Prerequisite(s): None

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