Welcome to Dakota County Technical College. As we head into our 40th Anniversary in 2010, the prime purpose of our college continues to be preparing our graduates for life as dynamic contributors to the nation’s workforce and as fully engaged members of their communities. Our faculty and staff are dedicated to the well-being and prosperity of our student population. We recognize that our students—with their individual abilities, interests and talents—are the keystones of our college.

Our college motto is “Real Education, Real Results.” Students who enroll at DCTC for degrees, diplomas, certificates or specific courses for career development swiftly discover that our faculty and staff are committed to helping them realize their personal and professional dreams. At Dakota County Technical College, the real story of our success is found in the real-life success stories of our students.

Best wishes for your future!

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**CONNECT WITH US**

- Online: dctc.edu
- Facebook: facebook.com/dakotatech
- Twitter: twitter.com/dctc
- E-mail: admissions@dctc.edu
- Visit: Tuesday Campus Visits Every Tuesday, 12:45 - 2:30 p.m.
- Contact: 1300 145th Street E. Rosemount, MN 55068 651-423-8000

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**CELEBRATE WITH US**

**COLLEGE SHOWCASE**

Wednesday, April 1, 2010 - 8 p.m.

Don’t miss this FUN, FREE family event featuring food from more than 40 area restaurants plus program demos, scholarship giveaways and more.

**SEPTEMBERFEST**

Saturday, September 11, 2010 10 a.m. - 5 p.m.

Please join us to celebrate DCTC’s 40th anniversary with a variety of outdoor activities, entertainment, food, road race (5K), car show, arts and crafts, and so much more.

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**WEB. DCTC.EDU**

Dakota County Technical College, a member of the Minnesota State Colleges and Universities system, 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.

Harassment of an individual or group on the basis of race, sex, color, creed, religion, age, national origin, disability, marital status, status with regard to public assistance, sexual orientation, or membership in a local commission as defined by law. Harassment of an individual or group on the basis of race, sex, color, creed, religion, age, national origin, disability, marital status, status with regard to public assistance, sexual orientation, or membership in a local commission as defined by law. Further, Dakota County Technical College shall work to eliminate violence in all its forms. Physical contact by designated college staff members may be appropriate if necessary to avoid physical harm to persons or property.

This document is available in alternative formats to individuals with disabilities by calling 877-927-1282 or TTY: 651-423-8621.

This publication is not an offer to contract or a contract. DCTC reserves the right to change information without notice when circumstances warrant such action.
Mission

The mission of Dakota County Technical College is to provide collegiate-level education for employment that will empower individuals to enhance their opportunities for career advancement and success in a global economy.

Vision

Dakota County Technical College will be recognized as a leader in providing quality technical and general education needed for employment in an ever-changing work environment.

Philosophy

Dakota County Technical College is a public two-year institution of higher education dedicated to the philosophy that there is dignity in all work and value in individual growth and learning. It is the philosophy of the college that all of its students should have access to quality education that prepares them for rewarding careers. The college values its role in contributing to economic development by providing a knowledgeable and skilled workforce. The college views itself as a full partner in the higher education community and recognizes its contribution to lifelong learning.
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Understanding this Guide

This catalog contains sample course sequences for completing degrees, diplomas and certificates at Dakota County Technical College (DCTC). Please note that the sequence samples shown are only one of many options. You should meet with an instructor or academic advisor to discuss a sequence that fits your schedule and meets your educational goals. For the most up-to-date information, visit dctc.edu.

Accreditation

DCTC is fully accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools.

DCTC also holds occupationally specific accreditation in a number of its programs.

- The Practical Nursing major is accredited by the Minnesota Board of Nursing.
- The Landscape Horticulture major is nationally accredited by the Associated Landscape Contractors of America (ALCA).
- The Dental Assistant major is accredited by the Commission on Dental Accreditation of the American Dental Association.
- The Medical Assistant major is accredited by the Council of Accreditation and Unit Recognition (CAUR) of the American Association of Medical Assistants’ Endowment.
- The Medical Coding Program is approved by the Council on American Health Information Management Association (AHIMA).
- The Automotive Technician program, Auto Body Collision Technology program, and Automotive Service Educational Program are approved by the National Automotive Technicians Educator Foundation, Inc. (NATEF).

DCTC meets established standards and is approved for the instruction of veterans, orphans of war veterans, state and federal rehabilitation students, and members of the workforce needing training or retraining. DCTC meets the definition of an institution of higher education, and students are entitled to participate in federal financial assistance programs.

ADMISSIONS

651-423-8000 | ADMISSIONS@DCTC.EDU

Students interested in exploring higher education options and those beginning the application process are encouraged to attend DCTC’s, Campus Visit (Every Tuesday 12:45-2:30 p.m., no reservation required). At the visit, students are given the opportunity to gather information on the college, the admissions requirements, and tour classrooms, labs and shops.

New Student Admission

Students pursuing a degree, diploma, or certificate must complete the following admissions requirements:

1. Submit a DCTC Application
   Available in this catalog, at DCTC, or online at dctc.edu/go/onlineapp
2. Pay a $20 non-refundable application fee
   Online payment is accepted with a credit card at dctc.edu/go/admissions
3. Complete the ACCUPLACER Placement Test
   For a testing schedule, call 651-423-8000 or visit dctc.edu/go/accuplacer
4. Complete an immunization form
   Available at DCTC or online at dctc.edu/go/admissions
5. Submit transcripts
   If you have graduated from high school within the last five years, you must submit high school transcripts. GED recipients must provide a copy of their GED certificate. Official college transcripts are required from students with previous degrees or when transferring in credits. Official non-MnSCU college transcripts must be sent directly from the previous college in a sealed envelope.

In addition, applicants to specific programs must meet published, program-specific admissions requirements.

Transfer Student Admission

A student wishing to transfer credits into Dakota County Technical College must complete the new student admissions process and designate a major field of study.

Only those courses that are applicable to a student’s chosen degree, certificate, or major will be considered for transfer.
Transfer credits need to have a grade of C- or higher and be from a college with a regional accreditation of colleges and schools (North Central, Middle States, etc) in order to be considered for transfer.

For an unofficial review of general education courses, please contact Colleen Moser at 651-423-8277 or colleen.moser@dctc.edu. For a review of technical credits, contact an enrollment advisor in Student Services. Official transcripts are not necessary for an unofficial review but will be required for final verification and transcription of transfer credits.

**Returning Student Admission**

Students in continuous programs who have been absent for one or more terms must comply with the admission requirements that are in effect when returning to DCTC. Contact Admissions for more information.

**International Student Admission**

Dakota County Technical College seeks a culturally diverse campus and welcomes applications from students from other countries. DCTC staff will evaluate each application and determine whether to issue an I-20 (Certificate of Eligibility for Non-Immigrant Student Status) form after receiving the following documentation:

1. International application form with $20 application fee
2. TOEFL exam with a minimum score of 61 on the internet-based exam
3. Copy of passport or visa
4. Official high school and/or college transcripts (translated in English)
5. Affidavit of support
6. Immunization form

Students are sent written notification of acceptance and an I-20 after all documents are received and reviewed.

Students are required to pay the non-resident tuition rate.

**Post-Secondary Enrollment Option (PSEO)**

**Eligibility and Admission**

High school students eligible for Post-Secondary Enrollment Option must be in the upper 1/3 of their junior class or the upper 1/2 of their senior class. PSEO applicants from alternative learning centers and/or home schools must achieve qualifying scores on the ACCUPLACER Test (Reading Comprehension, 78 or higher; Sentence Skills, 86 or higher; Arithmetic, 56 or higher). If a PSEO applicant does not meet the class rank requirements, they must achieve qualifying scores on the ACCUPLACER Test and have at least a 2.0 G.P.A. and meet with an admissions counselor. The PSEO Admissions Committee will review scores and high school transcript for a final decision.

PSEO eligible students must complete the new student admissions process listed on page two. DCTC applications for PSEO students are available at DCTC or online at dctc.edu/pseo. PSEO applicants must also submit a PSEO Program Notice of Student Registration form signed by their high school counselor.

**PSEO Student Admission Deadline**

June 1 for Fall Semester
December 1 for Spring Semester

To discuss PSEO options at DCTC, call Karianne Loula at 651-423-8298 or LeeAnn Xiong at 651-423-8221 or e-mail admissions@dctc.edu.

**ACCUPLACER Placement Test**

The ACCUPLACER is an assessment of reading comprehension, sentence skills and mathematics skills. Students entering some programs will also need an elementary algebra assessment. The results provide advisors with information needed for course placement.

Testing is available on a walk-in basis Monday-Friday. Call 651-423-8000 or visit dctc.edu/go/accuplacer for the testing schedule. Students who have completed an associate’s degree, bachelor’s degree or graduate degree may be exempt from the test, but need to complete an exemption form and provide official transcripts before an exemption decision is made.

**Selection of Major**

It is recommended that students declare a major upon enrollment at the college. Majors may be changed, depending upon factors such as student interest and success. Before completing an application to attend DCTC, new students may meet with an advisor to determine their major.
Undeclared Major
Students not pursuing a degree, diploma, or certificate do not need to complete the admissions process if they do not intend to:

1. Receive veterans’ benefits
2. Transfer credits toward a degree, diploma, or certificate
3. Receive financial aid

Residency
Residency status will be as determined by Minnesota Statute 135A.031, subd.2. Students who demonstrate a domicile in Minnesota may petition the college for reclassification as a resident for the purpose of paying in-state tuition. A complete explanation of state residency requirements is available in the Student Services Office.

Credits
Students completing 15 to 18 credits per semester will finish most programs in an average length of time. Students taking 12 or more credits are considered full-time students. Check with the Office of Scholarships and Financial Aid on current definitions as they apply to specific grants and loans.

Degrees, Diplomas, and Certificates
**Associate in Applied Science Degrees:** are awarded for successful completion of a program of 60 to 85 semester credits. At least 20 semester credits shall be delivered by DCTC. An A.A.S. degree is primarily intended to prepare students for employment. An A.A.S. program includes approximately 20 semester credits of general education. General education courses shall be selected from at least three of the 10 goal areas of the Minnesota Transfer Curriculum. At least 30 semester credits shall be program-related occupation or technical credits.

**Associate in Science Degrees:** are awarded for successful completion of a program of 60 semester credits. At least 20 semester credits shall be delivered by DCTC. An A.S. degree is designed to transfer to a related baccalaureate major. An A.S. program includes a minimum of 30% semester credits in general education. General education courses shall be selected from at least six of the 10 goal areas of the Minnesota Transfer Curriculum.

**Diplomas:** are awarded for successful completion of a program intended to provide students with employment skills. Diplomas vary from 30 to 72 semester credits. At least one-third of the credits shall be delivered by DCTC.

Certificates: are awarded for successful completion of a specialized program of study and vary in length from nine to 30 semester credits. At least one-third of the credits shall be delivered by DCTC.

REGISTRATION
651-423-8038 | REGISTRATION@DCTC.EDU

**Full-Time and/or Degree Seeking Students**
After new students are admitted to the college, they will be invited to attend a New Student Orientation/Registration session. During the session students will be given necessary information to ensure a successful college registration experience. Following the presentation, students will meet with an advisor to select courses for the term and they will register online with the guidance of the registration staff.

Students should make payment arrangements with the Tuition or Financial Aid Office or pay their tuition online at dctc.edu/go/paytuition. Those interested in setting up a payment plan should contact the Tuition Office by e-mail tuition@dctc.edu or call 651-423-8045.

**Part-Time or Non-Degree Seeking Students**
Students wanting to attend on a part-time basis and/or are not pursuing a degree may register as an undeclared student. On-line, mailed or faxed registration requests will be accepted with payment during the open registration period published in the course schedule. Requests received prior to this date will be held and processed in the order in which they were received after open registration begins. Requests received without payment may be returned unprocessed. Visit dctc.edu/go/part-time for additional details.

**Change of Registration (Drop, Add, Withdrawal)**
Student are responsible for their registration, drop, add and withdrawal from courses. Students are also responsible for the tuition and fees assessed as a result of their registration-related transactions.

**Transfer from DCTC**
DCTC has transfer agreements with several colleges and universities. For more information on transferring your degree from DCTC, visit dctc.edu/go/transferout.
TUITION & FEES
651-423-8045 | TUITION@DCTC.EDU

Tuition rates are set by the Minnesota State Colleges and Universities Board and are subject to change without notice. Tuition is based upon the number of credits the student takes. Books and supplies are additional and vary for each student each semester, depending on major and course selection. Final payment of all tuition and fees is required each semester to confirm registration for courses. Tuition and fees for the 2009-2010 school year were $169.47 per credit.

Reciprocity
Reciprocal tuition agreements exist between Minnesota/Wisconsin, Minnesota/North Dakota, Minnesota/South Dakota, and Minnesota/Manitoba. For more information, call the Admissions Office at 651-423-8000.

Senior Citizens
Minnesota residents 62 or older may register for credit courses on a space-available basis within one week before courses begin. If you take the course for credit, tuition is $20 per credit (tuition is waived if you choose to audit the course). The following fees are applicable to all senior citizens: technology, MSCSA, health, parking, and non-refundable application fee.

FINANCIAL AID & SCHOLARSHIPS
651-423-8299 | FINAID@DCTC.EDU

Student financial aid is monetary assistance made available to students who qualify. Approximately 80 percent of the students attending Dakota County Technical College (DCTC) receive some type of financial aid. Financial aid is awarded on the basis of need. Need is determined by a family’s financial strength. Items such as income, number in the family, other family members in college, ownership of property or a business, and a number of other criteria are taken into consideration. Strict congressionally-mandated formulas are used to determine need to ensure fair and equal treatment of everyone applying for financial aid. At DCTC there are four kinds of financial aid: scholarships, grants, work-study, and loans. Scholarships and grants are funds that do not have to be paid back. Work-study funds are earned by students working part-time on campus or at a non-profit organization off campus. Loans are funds that the student borrows from lending institutions and repays with interest. The purpose of the financial aid programs is to provide financial assistance to students who, without such aid, would find it difficult to attend college.

Applying for Financial Aid
Several types of financial aid are available to students at DCTC, but students must apply in order to receive aid. To apply, all students must fill out the Free Application for Federal Student Aid (FAFSA), complete the admissions process, and register for classes at DCTC. The FAFSA is available on the Web at fafsa.ed.gov. Some financial aid programs require an additional application. Students who want to be considered for a DCTC or DCTC Foundation scholarship must complete a separate scholarship application. DCTC staff are available to assist with the application process. Additional information about the application process is available at dctc.edu/go/financialaid.

The financial aid year includes fall semester, spring semester and summer session. Students must re-apply each year they attend college. The FAFSA determines eligibility for the following programs:

Federal Pell Grant: This is a Federal grant, which does not have to be paid back.

Minnesota State Grant Program: This is a state grant that does not have to be paid back. It is available to Minnesota residents only.

Federal Supplemental Educational Opportunity Grant (FSEOG): This is a federal grant that does not have to be paid back.

Work-Study: This program allows students to work while they go to school. Positions are available on campus and at certain non-profit agencies.

Stafford Student Loan: This loan allows students to borrow money for education related expenses. The Stafford Loan must be paid back. DCTC strongly encourages students to limit the amount they borrow. As with other types of financial aid, all students must complete the FAFSA before applying for the Stafford Loan. All students must complete a DCTC loan counseling session before applying for a student loan. This can be done on the Web by using the loan links at dctc.edu/future-students/pay-for-college/loans.cfm. Additionally, students must complete an exit counseling session before leaving DCTC.

SELF, PLUS, and Alternative Loans: These are additional loans for students and parents of students. Information on these loan programs is available in the Office of Scholarships and Financial Aid.

Child Care Assistance: A limited amount of funds are available on a first-come, first-serve basis through the Post-Secondary Child Care Grant Program for students who have children needing child care.
Other Funding Sources
Veteran and Military Benefits: Veterans and military personnel planning to use their education benefits should contact the Office of Scholarships and Financial Aid. All students must apply through this office for certification of eligibility by the college. All students with questions regarding veteran or military benefits should contact Kerry Lurken, at 651-423-8278 or e-mail Kerry.Lurken@dctc.edu.

Scholarships: Scholarships are awarded each year and are based on certain criteria. Scholarship funds may be available to first- and second-year students, recent high school graduates, and adult learners. Many scholarships are awarded through the DCTC Foundation. The mission of the Foundation is to support the college’s mission, education for employment, by providing resource support for students, the college, and the programs.

COLLEGE SERVICES

DCTC is committed to providing its students with the opportunity to develop technical skills that lead to good careers. The excellent faculty and superb technical facilities contribute to the learning environment. The Student Services staff provide a variety of services to complement and enhance each student’s success.

Bookstore
651-423-8486 | BOOKSTORE@DCTC.EDU
Students may purchase books and supplies in the DCTC Bookstore and online. Visit the bookstore web site at dctcbookstore.com for store hours.

Café
651-423-8466
The café is open daily when the college is in full session and other times as posted. The café offers breakfast and grill entrees as well as soup, salad, sandwiches, juice, soda, and snacks. Regular hours are 6:30 a.m. to 1:30 p.m.

Career Services
651-423-8450
Career Services at DCTC helps students and alumni develop, evaluate and implement their career plans. For more information, visit dctc.edu/go/careerservices or stop by Room 2-141.

Counseling
651-423-8492
Due to difficult life circumstances and/or academic challenges, college students may need assistance in developing coping strategies. The college counselor is professionally trained to help students deal with a variety of educational, adjustment and mental health issues. For more information, visit dctc.edu/go/counseling or stop by Room 2-141.

Disability Services
651-423-8469
Dakota County Technical College is committed to providing an accessible education to students with disabilities. Enrolled students may be eligible for services if they have a documented disability that significantly limits one or more major life activities, e.g., learning, walking and/or reading. To discuss or arrange accommodations, call Anne Swanberg at 651-423-8469 or stop by Room 2-141.

Health Services
651-423-8371
A licensed practical nurse is on duty Monday-Friday from 7 a.m. to 3 p.m. during fall and spring semesters and 7 a.m. to 2:30 p.m. during summer session. Health Services in located in Room 2-205. Please report any medical concerns to Health Services.

Housing
651-423-8000
DCTC maintains a housing and apartment list for students based on information provided by the general public. For the most current list, visit dctc.edu/go/housing.

Computer Lab (Instructional Technology Center)
651-423-8657
The Instructional Technology Center (ITC) is a computer lab available to students for general computer use. The ITC is located in Room 2-101. For more information, visit dctc.edu/go/itc.

Library
651-423-8345
DCTC’s library offers students a wide variety of informational resources. The library is located on the west side of DCTC’s campus, on the first floor. For more information, visit dctclibrary.dctc.edu.
Learning Center
651-423-8420
The Learning Center provides tutoring and other learning support services to help students achieve success in their technical and occupational training program. For more information, visit dctc.edu/go/learningcenter or stop by Room 2-141.

TRiO/Student Support Services
651-423-8420
DCTC has a Federal TRiO educational opportunity outreach program to serve and assist low-income, first-generation college students, and students with disabilities to progress through the academic pipeline from middle school to postbaccalaureate programs. For more information, visit dctc.edu/go/trio or stop by Room 2-141.

STUDENT LIFE
651-423-8330 | STUDENTLIFE@DCTC.EDU

The Student Life Program at DCTC provides opportunities for students to participate in co- and extra-curricular activities. A goal of the program is to maximize student’s experience and involvement in the educational process at DCTC. The college believes a dynamic Student Life program creates a distinctive and excellent learning environment that promotes the college. DCTC’s student life center is located on the first floor in the central commons area.

Alumni Association
651-423-8249 | ALUMNI@DCTC.EDU
Anyone who has ever attended a class at DCTC is an alum, and therefore eligible for membership in the DCTC Alumni Association. The mission of the Alumni Association is to reunite former students with the college and their programs, to provide life-long learning opportunities and services to the community. To be a part of the association, visit dctc/go/alumni.

Student Senate
651-423-8330 | STUSENATE@DCTC.EDU
Student Senate is the voice of the student body. The Senate strives to represent student opinion to the college faculty, staff, and administration as well as the college community and the state legislature. Student Senate deals with all aspects of college life, including: academics, student life, judicial affairs, health and human services, and civic engagement. For more information or to join the Senate, visit dctc.edu/go/senate/index.cfm.

Blue Knights Athletics
651-423-8330 | ATHLETICS@DCTC.EDU
DCTC is a member of the National Junior College Athletic Association (NJCAA), the Minnesota College Athletic Conference (MCAC) Division III, and the Iowa Community College Conference (ICCAC) Division I. The college has varsity teams in men’s soccer, women’s soccer, fastpitch softball and baseball.

Clubs and Organizations
DCTC has a variety of program and special interest clubs and organizations where students can get involved and be active outside of the classroom. We currently offer:
- Multicultural Student Leadership Association (MSLA)
- Phi Theta Kappa International Honor Society
- SkillsUSA Minnesota
- American Marketing Association (AMA) Club
- Veterans Club
- Automotive Club
- Chess Club
- Coral Reef Ecology Club
- Landscape Horticulture Club

For more information or to start your own club, visit dctc/go/clubs.

Wellness Center
651-423-8330 | WELLNESS.CENTER@DCTC.EDU
The Wellness Center is a work out facility available to DCTC students. The Center provides cardio equipment, weight machines and free weights. Qualified staff are available to give first-time users an introduction to the equipment. The Wellness Center is located in Room 1-705.

Veterans Resource Center
651-423-8627 | VETERANS@DCTC.EDU
Within our Student Life Center we have a Veterans Resource Center which is open to military members and their families. The Center has information on educational benefits, and other programs that may be of interest. Stop by or give us a call.
PROGRAMS OF STUDY

Accounting 11
Information Systems 13-17
   - Information Systems Management 13
   - Networking Administration 15
   - Software Development 17
Office Careers 19-26
   - Executive & Administrative Assistant 19
   - Legal Administrative Assistant 21
   - Medical Administrative Assistant 23
   - Medical Coding Specialist 25
   - Medical Transcriptionist 26

INFORMATION IS EVERYTHING

We are living in the Information Age. Understanding how to make information work is a vital skill at every level of business, from crunching numbers to mastering office technologies to configuring network solutions.

Facing an information overload, society needs trained people to manage, interpret and communicate an ongoing inrush and outflow of data. Business and Information Systems programs give students the tools and know-how to find their favorite lane on the information superhighway.

TRAITS OF THE TRADE

Professionals with a gift for mastering information are:

- Good at analyzing risk
- Skilled in managing resources
- Natural problem solvers
- Critical thinkers
- Organized
- Thoughtful
- Multitaskers
- Independent
- Detail-oriented
- Computer smart
- Self-motivators

Unless otherwise specified, salary data is sourced from iseek.org.
“Information technology and business are becoming inextricably interwoven. I don’t think anybody can talk meaningfully about one without talking about the other.”

— Bill Gates —
ACCOUNTING

Delivery: Daytime and Online Classes
Start: Fall or Spring Semester, Full- or Part-Time
Location: Rosemount Campus

Major Description
Accounting students are trained to analyze, interpret and record financial information. Working with word processing, spreadsheet and accounting software, they learn how to prepare financial statements, tax returns and government forms. They also learn federal and state tax and payroll laws.

Work Environment
Accountants work in typical office settings with a fair number working out of their homes. Some travel during the course of their workdays, visiting branch locations, government offices and client businesses.

Potential Job Titles
- Account Administrator
- Budget Accountant
- Business Analyst
- Financial Adviser
- Payroll Accountant
- Tax Accountant

Salary Data
- Average Wage: $30.90
- Top Earners: $46.04

ACCOUNTANT – A.A.S. DEGREE

First Year - First Semester
- ACCT1000 Principles of Accounting I 4
- ACCT1100 Business Law and Ethics 3
- ACCT1106 Accounting Mathematics 3
- COML1400 Introduction to Computers 3
- General Education Elective** 4
Total Credits 17

First Year - Second Semester
- ACCT1003 Principles of Accounting II 4
- ACCT1226 Payroll Accounting 3
- ACCT1306 Spreadsheets 3
- ACCT1406 Income Tax 4
- Technical Elective* 3
- SPEE1020 Interpersonal Communication 3
Total Credits 20

Second Year - First Semester
- ACCT2000 Intermediate Accounting I 4
- ACCT2100 Cost Accounting I 4
- ACCT2200 Accounting Computer Applications I 3
- ENGL1150 Composition I 3
- General Education Elective** 3
Total Credits 17

Second Year - Second Semester
- ACCT2003 Intermediate Accounting II 4
- ACCT2103 Cost Accounting II 4
- ACCT2203 Accounting Computer Applications II 3
- ACCT2306 Auditing 3
- General Education Elective (MnTC Goal 3 or 4)** 4
Total Credits 18

TOTAL PROGRAM REQUIREMENTS 72

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

* Technical electives may be selected from the following subject areas: ACCT, ISTC or OFFC.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
ACCOUNTANT – DIPLOMA

First Year - First Semester
ACCT1000 Principles of Accounting I 4
ACCT1100 Business Law and Ethics 3
ACCT1106 Accounting Mathematics 3
Technical Elective* 2
COML1400 Introduction to Computers 3
Total Credits 15

First Year - Second Semester
ACCT1003 Principles of Accounting II 4
ACCT1226 Payroll Accounting 3
ACCT1306 Spreadsheets 3
ACCT1406 Income Tax 4
SPEE1020 Interpersonal Communication 3
Total Credits 17

Second Year - First Semester
ACCT2000 Intermediate Accounting I 4
ACCT2100 Cost Accounting I 4
ACCT2200 Accounting Computer Applications I 3
Technical Elective* 2
ENGL1150 Composition I (or ENGL1000) 3
Total Credits 16

Second Year - Second Semester
ACCT2003 Intermediate Accounting II 4
ACCT2103 Cost Accounting II 4
ACCT2203 Accounting Computer Applications II 3
ACCT2306 Auditing 3
Technical Elective* 2
Total Credits 16

TOTAL PROGRAM REQUIREMENTS 64

ACCOUNTING CLERK – DIPLOMA

First Year - First Semester
ACCT1000 Principles of Accounting I 4
ACCT1100 Business Law and Ethics 3
ACCT1106 Accounting Mathematics 3
COML1400 Introduction to Computers 3
Technical Elective* 2
Total Credits 15

First Year - Second Semester
ACCT1003 Principles of Accounting II 4
ACCT1226 Payroll Accounting 3
ACCT1306 Spreadsheets 3
ACCT1406 Income Tax 4
ENGL1150 Composition I (or ENGL1000) 3
Total Credits 17

TOTAL PROGRAM REQUIREMENTS 32

This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.

* Technical electives may be selected from the following subject areas: ACCT, ISTC or OFFC.
INFORMATION SYSTEMS MANAGEMENT

Delivery: Daytime and Evening Classes
Start: Fall or Spring Semester, Full- or Part-Time
Location: Rosemount Campus

Major Description
This interdisciplinary program combines courses from Networking Administration, Software Development and Information Systems Management to teach a unique blend of networking, programming and management skills. Graduates are prepared to function in small business firms as the sole computer resource person or, matched with entrepreneurial knowledge, start their own computer consulting firms.

Work Environment
Equipped with well-developed analytical skills, information system managers experience a high level of social interaction. With job duties that keep them indoors, they typically work a regular business week.

Potential Job Titles
• Computer Network Support Technician
• Network Administrator, IT
• System Administrator, Computer/Network
• Information Technology Specialist
• Systems Administrator
• Programmer Analyst

Salary Data (Payscale.com)
Information Technology Specialist
• Salary Range: $34,902-$51,900/year

Programmer Analyst
• Salary Range: $44,462-$59,616/year

INFORMATION SYSTEMS MANAGEMENT – A.A.S. DEGREE

First Year - First Semester
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<thead>
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Total Credits: 15

First Year - Second Semester
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Total Credits: 18

Second Year - First Semester
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<td>ISTC2100</td>
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Total Credits: 20

TOTAL PROGRAM REQUIREMENTS 71

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
## INFORMATION SYSTEMS MANAGEMENT – DIPLOMA

### First Year - First Semester

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### First Year - Second Semester

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### Second Year - First Semester

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### Second Year - Second Semester

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**TOTAL PROGRAM REQUIREMENTS** 60

*This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.*
NETWORKING ADMINISTRATION

Delivery: Daytime and Evening Classes
Start: Fall or Spring Semester, Full- or Part-Time
Location: Rosemount Campus

Major Description
This program provides students with the knowledge and experience to install and maintain computers, servers, networks and other networking equipment to function in a variety of network environments. Combining a theory-based foundation with hands-on work, students build and manage networks, install software, configure a variety of networking devices, including switches and routers, and troubleshoot problems related to both hardware and software.

Work Environment
Graduates secure employment in entry-level positions such as network installation, network management, network maintenance, computer technician and help desk.

Potential Job Titles
- Network Administrator
- Network Manager
- Network Security Administrator
- Network Services Supervisor
- Network Specialist
- Network Systems Coordinator

Salary Data
- Average Wage: $36.11/hour
- Top Earners: $50.61/hour

NETWORKING ADMINISTRATION – A.A.S. DEGREE

First Year - First Semester
<table>
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First Year - Second Semester
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Second Year - First Semester
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Second Year - Second Semester
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<td>ISTC2070</td>
<td>Security III: Forensics</td>
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</table>

TOTAL PROGRAM REQUIREMENTS 71

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
### NETWORKING ADMINISTRATION – DIPLOMA

#### First Year - First Semester
- ISTC1100 Business Communications 3
- ISTC1030 Operating Systems I 3
- ISTC1040 Network Systems I 3
- COML1400 Introduction to Computers 3
- SPEE1020 Interpersonal Communication 3

**Total Credits** 15

#### First Year - Second Semester
- ISTC1010 Microcomputer Maintenance 3
- ISTC1033 Operating Systems II 3
- ISTC1050 Database Systems 3
- ISTC1400 Wireless Systems 3
- ISTC2005 Network Systems II 3

**Total Credits** 15

#### Second Year - First Semester
- ENGL1150 Composition I 3
- ISTC1060 Security I 3
- ISTC2010 Network Systems III 3
- ISTC2035 Operating System III 3
- ISTC2040 Database Management 3

**Total Credits** 15

#### Second Year - Second Semester
- ISTC2015 Network Systems IV 3
- ISTC2065 Security II: Firewalls 3
- ISTC2070 Security III: Forensics 3
- ISTC2100 Project Management 3
- ISTC2140 Digital Convergence 3

**Total Credits** 15

**TOTAL PROGRAM REQUIREMENTS** 60

*This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.*

### PC TECHNICIAN – CERTIFICATE

#### First Year - First Semester
- ISTC1100 Business Communications 3
- ISTC1030 Operating Systems I 3
- ISTC1040 Network Systems I 3
- SPEE1020 Interpersonal Communication 3
- COML1400 Introduction to Computers 3

**Total Credits** 15

#### First Year - Second Semester
- ISTC1010 Microcomputer Maintenance 3
- ISTC1033 Operating Systems II 3
- ISTC1050 Database Systems 3
- ISTC1060 Security I 3
- ISTC1400 Wireless Systems 3

**Total Credits** 15

**TOTAL PROGRAM REQUIREMENTS** 30

*This is a sample course sequence resulting in a certificate. Please consult your program advisor regarding your academic plans.*
SOFTWARE DEVELOPMENT

Major Description
This program prepares students to become computer programmers. Learning an array of programming languages used for software development. Students design, write, debug and test application software. Individual effort and teamwork are developed. Skilled graduates are prepared to provide software solutions for employers.

Work Environment
Working indoors in clean, comfortable offices or laboratories, programmers convert data from project specifications and problem statements to develop computer programs. Often employed in a team setting, programmers are also working more from home or other remote locations as telecommuting becomes more prevalent.

Potential Job Titles
- Computer Programmer
- Computer Software Specialist
- Software Architect
- Software Developer
- Software Development Engineer
- Software Quality Assurance Specialist

Salary Data
- Average Wage: $43.47/hour
- Top Earners: $61.26/hour

SOFTWARE DEVELOPMENT – A.A.S. DEGREE

First Year - First Semester
- ISTC1100 Business Communications 3
- ISTC1030 Operating Systems I 3
- ISTC1040 Network Systems I 3
- ISTC1300 Introduction to Programming 3
- COML1400 Introduction to Computers 3
- SPEE1020 Interpersonal Communication 3

Total Credits 18

First Year - Second Semester
- ISTC1010 Microcomputer Maintenance 3
- ISTC1033 Operating Systems II 3
- ISTC1050 Database Systems 3
- ISTC1060 Security I 3
- ISTC1205 Web Client Programming 3
- ENGL1150 Composition I 3

Total Credits 18

Second Year - First Semester
- ISTC1210 Web Server Programming 3
- ISTC1230 System Analysis and Design 3
- ISTC2310 Java I 3
- ISTC2320 .NET I 3
- General Education Elective** 7

Total Credits 19

Second Year - Second Semester
- ISTC2050 Data Structures 3
- ISTC2100 Project Management 3
- ISTC2315 Java II 3
- ISTC2325 .NET II 3
- General Education Elective (MnTC Goal 3 or 4)**4

Total Credits 16

TOTAL PROGRAM REQUIREMENTS 71

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
## SOFTWARE DEVELOPMENT – DIPLOMA

### First Year - First Semester
- ISTC1100 Business Communications 3
- ISTC1030 Operating Systems I 3
- ISTC1040 Network Systems I 3
- ISTC1300 Introduction to Programming 3
- COML1400 Introduction to Computers 3
- **Total Credits** 15

### First Year - Second Semester
- ISTC1010 Microcomputer Maintenance 3
- ISTC1033 Operating Systems II 3
- ISTC1050 Database Systems 3
- ISTC1060 Security I 3
- ISTC1205 Web Client Programming 3
- **Total Credits** 15

### Second Year - First Semester
- ISTC1210 Web Server Programming 3
- ISTC1230 System Analysis and Design 3
- ISTC2310 Java I 3
- ISTC2320 .NET I 3
- SPEE1020 Interpersonal Communication 3
- **Total Credits** 15

### Second Year - Second Semester
- ISTC2050 Data Structures 3
- ISTC2100 Project Management 3
- ISTC2315 Java II 3
- ISTC2325 .NET II 3
- ENGL1150 Composition I 3
- **Total Credits** 15

**TOTAL PROGRAM REQUIREMENTS 60**

This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.

## WEB DEVELOPER – DIPLOMA

### First Year - First Semester
- ISTC1100 Business Communications 3
- ISTC1030 Operating Systems I 3
- ISTC1300 Introduction to Programming 3
- VCOM1032 Interactive Design Fundamentals 2
- COML1400 Introduction to Computers 3
- **Total Credits** 14

### First Year - Second Semester
- ISTC1050 Database Systems 3
- ISTC1060 Security I 3
- ISTC1205 Web Client Programming 3
- ISTC1210 Web Server Programming 3
- ISTC2320 .NET I 3
- SPEE1020 Interpersonal Communication 3
- **Total Credits** 18

**TOTAL PROGRAM REQUIREMENTS 32**

This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.
EXECUTIVE & ADMINISTRATIVE ASSISTANT

Delivery: Daytime Classes  
Start: Fall or Spring Semester, Full- or Part-Time  
Location: Rosemount Campus  

Executive Assistant A.A.S. Degree  60 cr.  
Administrative Assistant Diploma  38 cr.  
Receptionist Certificate  25 cr.

Major Description

Executive Assistant: This program teaches the expertise needed for creating and editing documents, spreadsheets, databases, electronic presentations and Internet navigation research. This is the ideal major for people in the workforce looking for a challenge or ways to advance their careers.

Administrative Assistant: This program prepares students for employment in administrative support. Students use computer systems for document processing and file management tasks. Administrative assistants may perform duties such as handling mail, filing and retrieving records and handling telephone calls.

Work Environment

Graduates find employment in administrative support in a wide variety of businesses, including corporate headquarters, insurance companies, banks, manufacturing firms and government agencies.

Potential Job Titles

- Administrative Assistant
- Administrative Clerk
- Administrative Coordinator
- Administrative Office Specialist
- Clerical Office Worker
- Executive Assistant
- Office Assistant

Salary Data

- Average Wage: $21.67/hour
- Top Earners: $29.04/hour

EXECUTIVE ASSISTANT - A.A.S. DEGREE

Pending MnSCU Board Approval

First Year - First Semester

<table>
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<td>OFFC1010</td>
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<td>OFFC1019</td>
<td>Reception Skills</td>
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<td>Office Procedures</td>
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First Year - Second Semester

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<td>OFFC1230</td>
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Second Year - First Semester

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Second Year - Second Semester

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<th>Credits</th>
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<tbody>
<tr>
<td>OFFC1040</td>
<td>Integrated Office Skills</td>
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<tr>
<td></td>
<td>Technical Elective*</td>
<td>3</td>
</tr>
<tr>
<td>ENGL1150</td>
<td>Composition I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>General Education Elective**</td>
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</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

TOTAL PROGRAM REQUIREMENTS  60

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

* Technical electives may be selected from the following subject areas: OFFC, ISTC, ENTR, ACCT or SMGT; OFFC1265 is recommended.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
## Administrative Assistant - Diploma

### First Year - First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>OFFC1005</td>
<td>Keyboarding/Formatting</td>
<td>3</td>
</tr>
<tr>
<td>OFFC1010</td>
<td>Business English Skills</td>
<td>2</td>
</tr>
<tr>
<td>OFFC1019</td>
<td>Receptionist Skills</td>
<td>2</td>
</tr>
<tr>
<td>OFFC1020</td>
<td>Office Procedures</td>
<td>4</td>
</tr>
<tr>
<td>OFFC1030</td>
<td>Word Processing</td>
<td>3</td>
</tr>
<tr>
<td>COML1400</td>
<td>Introduction to Computers</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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### First Year - Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
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<td>OFFC1017</td>
<td>Technology for the Business Professional</td>
<td>3</td>
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<tr>
<td>OFFC1040</td>
<td>Integrated Office Skills</td>
<td>3</td>
</tr>
<tr>
<td>OFFC1230</td>
<td>MS Publisher</td>
<td>2</td>
</tr>
<tr>
<td>OFFC1260</td>
<td>Certification Basics - Word</td>
<td>3</td>
</tr>
<tr>
<td>OFFC1275</td>
<td>Certification Basics - PowerPoint</td>
<td>3</td>
</tr>
<tr>
<td>OFFC1285</td>
<td>Oral Business Comm./Job Seeking Skills</td>
<td>2</td>
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<tr>
<td>OFFC1290</td>
<td>Written Business Communications</td>
<td>2</td>
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<tr>
<td>SPEE1020</td>
<td>Interpersonal Communication</td>
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**TOTAL PROGRAM REQUIREMENTS** 38

---

## Receptionist - Certificate

### First Year - First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>OFFC1000</td>
<td>Basic Keyboarding</td>
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</tr>
<tr>
<td>OFFC1010</td>
<td>Business English Skills</td>
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<td>OFFC1019</td>
<td>Receptionist Skills</td>
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<tr>
<td>OFFC1200</td>
<td>Office Procedures</td>
<td>4</td>
</tr>
<tr>
<td>COML1400</td>
<td>Introduction to Computers</td>
<td>3</td>
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<td><strong>Total Credits</strong></td>
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### First Year - Second Semester

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<tr>
<td>OFFC1030</td>
<td>Word Processing</td>
<td>3</td>
</tr>
<tr>
<td>OFFC1285</td>
<td>Oral Business Comm./Job Seeking Skills</td>
<td>2</td>
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<tr>
<td>OFFC1290</td>
<td>Written Business Communications</td>
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<tr>
<td><strong>Total Credits</strong></td>
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<td><strong>13</strong></td>
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**TOTAL PROGRAM REQUIREMENTS** 25

---

*Technical electives may be selected from the following subject areas: OFFC, ISTC, ENTR, SMGT or ACCT.*
LEGAL ADMINISTRATIVE ASSISTANT

Delivery: Daytime Classes
Start: Fall or Spring Semester, Full- or Part-Time
Location: Rosemount Campus

Major Description
This program prepares students to work in a variety of law-related fields. Specialized legal courses include Civil Procedures, Family Law and Criminal Law. Exposure to basic legal concepts is accomplished through courses in Transactional Law and Legal Proofreading & Editing. Students also take an array of general administrative courses covering software applications, keyboarding and communications.

Work Environment
Key employers include law firms, court systems, insurance agencies, legal and trust departments of banks, corporations and government agencies. Legal assistants interact often and directly with clients and staff.

Potential Job Titles
- Legal Administrative Assistant
- Law Secretary
- Legal Secretary
- Paralegal
- Paralegal Secretary

Salary Data
- Average Wage: $24.03/hour
- Top Earners: $31.37/hour

LEGAL ADMINISTRATIVE ASSISTANT – A.A.S. DEGREE
Pending MnSCU Board Approval

First Year - First Semester
- OFFC1005 Keyboarding/Formatting 3
- OFFC1010 Business English Skills 2
- OFFC1019 Receptionist Skills 2
- OFFC1020 Office Procedures 4
- OTEC1725 Transactional Law † 3
- COML1400 Introduction to Computers 3

Total Credits 17

First Year - Second Semester
- OFFC1017 Technology for the Business Professional 3
- OFFC1030 Word Processing 3
- OFFC1040 Integrated Office Skills 3
- OFFC1275 Certification Basics – PowerPoint 3
- OFFC1290 Written Business Communications 2
- OTEC1730 Civil Procedures † 3

Total Credits 17

Second Year - First Semester
- OFFC1260 Certification Basics – Word 3
- OTEC2735 Family Law/Criminal Law † 3
- ENGL1150 Composition I 3
- PHIL1100 Ethics 3

Total Credits 12

Second Year - Second Semester
- OFFC1285 Oral Business Comm./Job Seeking Skills 2
- OTEC2740 Legal Proofreading & Editing † 3
- SPEE1020 Interpersonal Communication 3
- Technical Elective* 2
- General Education Elective (MnTC Goal 3 or 4)** 4

Total Credits 14

TOTAL PROGRAM REQUIREMENTS 60

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

† Courses offered online from South Central College-Mankato.

* Technical electives may be selected from the following subject areas: OFFC, ISTC, ENTR SMGT or ACCT.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
### LEGAL ADMINISTRATIVE ASSISTANT – DIPLOMA

<table>
<thead>
<tr>
<th>First Year - First Semester</th>
<th>Credits</th>
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<tbody>
<tr>
<td>OFFC1005 Keyboarding/Formatting</td>
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<tr>
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<tr>
<td>OFFC1030 Word Processing</td>
<td>3</td>
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<tr>
<td>OTEC1725 Transactional Law †</td>
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<tr>
<td>COML1400 Introduction to Computers</td>
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<tr>
<td>OFFC1040 Integrated Office Skills</td>
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<td>OFFC1260 Certification Basics – Word</td>
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<tr>
<td>OFFC1275 Certification Basics – PowerPoint</td>
<td>3</td>
</tr>
<tr>
<td>OFFC1285 Oral Business Comm./Job Seeking Skills</td>
<td>2</td>
</tr>
<tr>
<td>OFFC1290 Written Business Communications</td>
<td>2</td>
</tr>
<tr>
<td>OTEC1730 Civil Procedures</td>
<td>3</td>
</tr>
<tr>
<td>SPEE1020 Interpersonal Communication</td>
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**TOTAL PROGRAM REQUIREMENTS 39**

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### LEGAL RECEPTIONIST – CERTIFICATE

<table>
<thead>
<tr>
<th>First Year - First Semester</th>
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<tbody>
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<td>OFFC1000 Basic Keyboarding</td>
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<tr>
<td>OFFC1010 Business English Skills</td>
<td>2</td>
</tr>
<tr>
<td>OFFC1019 Receptionist Skills</td>
<td>2</td>
</tr>
<tr>
<td>OFFC1020 Office Procedures</td>
<td>4</td>
</tr>
<tr>
<td>OTEC1725 Transactional Law †</td>
<td>3</td>
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<td>COML1400 Introduction to Computers</td>
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<tbody>
<tr>
<td>OFFC1030 Word Processing</td>
<td>3</td>
</tr>
<tr>
<td>OFFC1285 Oral Business Comm./Job Seeking Skills</td>
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<tr>
<td>OFFC1290 Written Business Communications</td>
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<tr>
<td><strong>Technical Elective</strong></td>
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**TOTAL PROGRAM REQUIREMENTS 25**

---

*This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.*

† Courses offered online from South Central College–Mankato.

* Technical electives may be selected from the following subject areas: OFFC, ISTC, ENTR ACCT or SMGT.
MEDICAL ADMINISTRATIVE ASSISTANT

Delivery: Daytime Classes
Start: Fall or Spring Semester, Full- or Part-Time
Location: Rosemount Campus

Major Description
This program prepares students to work in a variety of positions in the medical field. Specialized medical courses include medical office procedures, medical terminology, anatomy and physiology. Students also complete various communications courses and become proficient in current software applications for word processing, spreadsheets and presentation graphics.

Work Environment
Medical administrative assistants are employed in hospitals, clinics, physician offices, insurance companies and other organizations connected to the medical field. Administrative duties include composing correspondence, controlling doctor schedules, preparing professional presentations, scheduling patient appointments, maintaining patient files and transcribing reports.

Potential Job Titles
• Medical Administrative Specialist
• Medical Office Clerk
• Medical Office Secretary
• Medical Office Specialist
• Medical Secretary
• Patient Services Representative

Salary Data
• Average Wage: $17.35/hour
• Top Earners: $21.36/hour

MEDICAL ADMINISTRATIVE ASSISTANT – A.A.S. DEGREE

Pending MnSCU Board Approval

First Year - First Semester
OFFC1005 Keyboarding/Formatting 3
OFFC1010 Business English Skills 2
OFFC1019 Receptionist Skills 2
OFFC1045 Medical Terminology 2
OFFC1057 Medical Office Procedures 4
COML1400 Introduction to Computers 3
Total Credits 16

First Year - Second Semester
OFFC1030 Word Processing 3
OFFC1052 Medical Transcription I 2
OFFC1053 Medical Transcription II 2
OFFC1054 Speech Recognition Transcription 2
OFFC1285 Oral Business Comm./Job Seeking Skills 2
OFFC1290 Written Business Communications 2
HEAL1101 Anatomy and Physiology 4
Total Credits 17

Second Year - First Semester
OFFC1260 Certification Basics – Word 3
ENGL1150 Composition I 3
PSYC1100 General Psychology 3
SPEE1020 Interpersonal Communication 3
General Education Elective* 1
Total Credits 13

Second Year - Second Semester
OFFC1017 Technology for the Business Professional 3
OFFC1040 Integrated Office Skills 3
OFFC1275 Certification Basics – PowerPoint 3
Technical Elective* 2
General Education Elective (MnTC Goal 3 or 4)** 3
Total Credits 14

TOTAL PROGRAM REQUIREMENTS 60

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

* Technical electives may selected from the following subject areas:
  OFFC, ISTC, ACCT, ENTR or SMGT.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
## MEDICAL ADMINISTRATIVE ASSISTANT - DIPLOMA

### First Year - First Semester
- **OFFC1005** Keyboarding/Formatting 3
- **OFFC1010** Business English Skills 2
- **OFFC1019** Receptionist Skills 2
- **OFFC1030** Word Processing 3
- **OFFC1045** Medical Terminology 2
- **OFFC1057** Medical Office Procedures 4
- **COML1400** Introduction to Computers 3

**Total Credits** 19

### First Year - Second Semester
- **OFFC1017** Technology for Business Professionals 3
- **OFFC1040** Integrated Office Skills 3
- **OFFC1260** Certification Basics - Word 3
- **OFFC1285** Oral Business Comm./Job Seeking Skills 2
- **OFFC1290** Written Business Communications 2
- **HEAL1101** Anatomy and Physiology 4
- **SPEE1020** Interpersonal Communication 3

**Total Credits** 20

**TOTAL PROGRAM REQUIREMENTS** 39

This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.

## MEDICAL RECEPTIONIST - CERTIFICATE

### First Year - First Semester
- **OFFC1000** Basic Keyboarding 1
- **OFFC1010** Business English Skills 2
- **OFFC1019** Receptionist Skills 2
- **OFFC1045** Medical Terminology 2
- **OFFC1057** Medical Office Procedures 4
- **COML1400** Introduction to Computers 3

**Total Credits** 14

### First Year - Second Semester
- **OFFC1030** Word Processing 3
- **OFFC1285** Oral Business Comm./Job Seeking Skills 2
- **OFFC1290** Written Business Communications 2
- **HEAL1101** Anatomy and Physiology 4

**Total Credits** 11

**TOTAL PROGRAM REQUIREMENTS** 25

This is a sample course sequence resulting in a certificate. Please consult your program advisor regarding your academic plans.
MEDICAL CODING SPECIALIST

Major Description
This program provides entry-level training for abstracting and coding of medical records. Graduates analyze medical record documentation to assign diagnostic and procedural codes, provide important information for the health care reimbursement process, and assist in medical research and statistics. Students learn medical terminology, disease processes, anatomy and physiology, and pharmacology.

Work Environment
Typically supervised by chief financial officers or health information managers, medical coding specialists find employment in hospitals, clinics, surgery centers, home health care agencies, long-term care facilities, insurance companies, coding and billing services, government agencies and other organizations connected to medical industries.

Potential Job Titles
• Medical Biller Coder
• Medical Billing Specialist
• Medical Coding Specialist
• Medical Insurance Clerk
• Medical Voucher Clerk

Salary Data (Health Careers Center)
• Average salary (U.S.): $31,300/year
• Top earners (U.S.): $39,700/year

MEDICAL CODING SPECIALIST – DIPLOMA

First Year - First Semester
- ADSCI221 Intro to Health Information Management † 3
- ADSCI231 ICD-9-CM Coding † 3
- OFFC1005 Keyboarding/Formatting 3
- OFFC1045 Medical Terminology 2
- COML1400 Introduction to Computers 3
  Total Credits 14

First Year - Second Semester
- ADSCI1040 Applied Medical Terminology † 2
- ADSCI1240 Coding/Reimbursement for Physicians’ Services † 3
- ADSCI1244 Legal and Ethical Aspects in Health Care † 2
- ADSCI1249 Advanced Coding and Reimbursement † 2
- HLTH1000 Disease Conditions † 2
- HEAL1101 Anatomy and Physiology 4
- HEAL1702 Pharmacology Basics 1
  Total Credits 16

Second Year - First Semester
- ADSCI1252 Professional Practice for Coding Specialist † 3
- OFFC1155 MS Excel II 2
- ENGL1150 Composition I 3
- SPEE1020 Interpersonal Communication 3
  Total Credits 11

TOTAL PROGRAM REQUIREMENTS 41

This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.

† Courses offered through Anoka Technical College (ATC).
MEDICAL TRANSCRIPTIONIST

Major Description
Graduates of this program become medical language specialists who interpret and transcribe dictation by physicians and other health care professionals regarding patient assessment, workup, therapeutic procedures, clinical course and other medical processes. Specialized medical courses include medical office procedures, medical terminology, anatomy and physiology, and medical transcription, including speech recognition transcription (editing of documents).

Work Environment
Careers are found in hospitals, clinics, extended-care facilities, medical research groups, and health departments and firms that provide medical transcription services. Transcriptionists may also work from home.

Potential Job Titles
- Medical Stenographer
- Medical Transcriptionist
- Transcribing-Machine Operator

Salary Data
- Average Wage: $18.78/hour
- Top Earners: $24.47/hour

MEDICAL TRANSCRIPTIONIST – DIPLOMA

First Year - First Semester
- OFFC1005 Keyboarding/Formatting 3
- OFFC1010 Business English Skills 2
- OFFC1019 Receptionist Skills 2
- OFFC1030 Word Processing 3
- OFFC1045 Medical Terminology 2
- OFFC1057 Medical Office Procedures 4
- COML1400 Introduction to Computers 3

Total Credits 19

First Year - Second Semester
- OFFC1017 Technology for the Business Professional 3
- OFFC1052 Medical Transcription I 2
- OFFC1053 Medical Transcription II 2
- OFFC1054 Speech Recognition Transcription 2
- OFFC1285 Oral Business Comm./Job Seeking Skills 2
- OFFC1290 Written Business Communications 2
- HEAL1101 Anatomy and Physiology 4
- SPEE1020 Interpersonal Communication 3

Total Credits 20

TOTAL PROGRAM REQUIREMENTS 39

This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.
Our Business and Management programs are delivered at the Partners in Higher Education site in Apple Valley, Minn., where three great colleges come together at one convenient location, allowing busy working adults to earn advanced degrees faster on a seamless track.

PROGRAMS OF STUDY

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Meeting & Event Management .............................. 40
Multicultural Management .................................. 42
Real Estate/Property Management ...................... 44
Supervisory Management .................................... 46

TAKING CARE OF BUSINESS

The business of doing business is often complex and challenging. Shifting economic landscapes, strong competition and dwindling markets are problems that are routinely confronted.

Make your mark in the arena of free enterprise. Learn from experienced business people who understand the complexities of commercial affairs.

TRAITS OF THE TRADE

Top business professionals, managers and entrepreneurs possess a number of characteristics:

• Clarity of purpose
• Outstanding communication skills
• Dedication to success
• Courage to take risks
• Enthusiastic vision
• Drive to found an enterprise
• Positive outlook
• Able to think tactically and strategically
• Desire to lead

Unless otherwise specified, salary data is sourced from isseek.org.
Contact Us

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DEAN

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M.S., University of Wisconsin, Stout
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“Obstacles are those frightful things you see when you take your eyes off your goal.”

— Henry Ford —
BUSINESS ENTREPRENEUR

Major Description
This program analyzes small-business management combined with the new ways business ventures are created, designed, developed and operated. The program’s central core investigates the processes and procedures needed to transform an entrepreneurial idea into a viable business operation. The certificate can stand alone for individuals with existing skills or complement a variety of existing technical programs.

Work Environment
Entrepreneurs compete in a vast range of business enterprises. Because they are self-employed, entrepreneurs need a broad base of business skills, including a comprehensive business plan, to be successful.

Potential Job Titles
For entrepreneurs, job titles are not a primary concern. Entrepreneurs focus on what they do, not what they’re called. However, experts point out that for the employees of entrepreneurs, job titles are important if not crucial to their work identity.

Salary Data (Simplyhired.com)
Annual salaries for entrepreneurs diverge dramatically due to an immense variety of factors.
- Average salary (U.S.): $111,000/year
BUSINESS MANAGEMENT

Major Description
This program provides essential knowledge and skills that can be applied to the constantly changing and highly competitive world of business. Students complete a core of business courses with an emphasis in management. Graduates can transfer to select four-year institutions to earn more advanced degrees.

Work Environment
Business professionals generally work in clean, comfortable, well-lit office spaces. Travel or relocation can be part of the job. However, improved technology continues to increase telecommuting from home offices, which along with teleconferencing, has reduced travel requirements.

Potential Job Titles
Business position titles will vary dramatically depending on the area of technical emphasis and the completion of a four-year degree.

• Small Business Management
• Office Manager
• Non-profit Director (look up salary)
• Front Line Supervisor
• Project Manager

Salary Data (Payscale.com)
Office Manager
• Average Wage: $24.74/hour
• Top Earners: $36.04/hour

Operations Manager
• Average Wage: $58.39/hour
• Top Earners: $80/hour

BUSINESS MANAGEMENT – A.S. DEGREE

This degree is primarily designed for students wishing to transfer to a four-year institution to obtain an advanced degree.

<table>
<thead>
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<th>Title</th>
<th>Credits</th>
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<tr>
<td>ACCT1000</td>
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<td>ENTR1170</td>
<td>Introduction to Small Business</td>
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<tr>
<td>MKTC1000</td>
<td>Principles of Marketing</td>
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<td>SMGT1033</td>
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<td>SMGT1241</td>
<td>Effective Business Communication</td>
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Total Credits 30

General Education

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<tr>
<td>MATH</td>
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<tr>
<td>Science</td>
<td>Science (Lab Preferred)</td>
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<td>General Education Elective**</td>
<td>17-18</td>
</tr>
</tbody>
</table>

Total Credits 30

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.

TOTAL PROGRAM REQUIREMENTS 60
GLOBAL BUSINESS

Major Description
The Global Business Certificate provides students with the skills and knowledge necessary to succeed in today’s global economy. This certificate addresses the international perspective of business management, import, export, supply chain, marketing and trade finance. Skills learned are universal and meet the needs of today’s international businesses which operate in the global economy.

Work Environment
Graduates with this training perform successfully in leadership positions within organizations currently doing business internationally or planning to expand into the international marketplace.

Potential Job Titles
• International Business Development Manager
• Team Leader
• Supervisor
• Manager
• International Event Manager
• International Marketing Professional
• International Logistic Professional

Salary Data
• Average wage: $27.61
• Top earners: $39.38

GLOBAL BUSINESS - CERTIFICATE
Pending MnSCU Approval

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>SMGT2125</td>
<td>International Business</td>
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<tr>
<td>SMGT2126</td>
<td>Import and Export</td>
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<tr>
<td>SMGT2127</td>
<td>International Enterprise Transactions</td>
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<tr>
<td>MKTC2550</td>
<td>International Marketing</td>
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<tr>
<td>SMGT2128</td>
<td>Trade Finance</td>
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<tr>
<td>SMGT2129</td>
<td>Global Supply Chain Management</td>
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</tbody>
</table>

Total Credits 18

TOTAL PROGRAM REQUIREMENTS 18
INDIVIDUALIZED STUDIES

Major Description
This degree enables students to custom-design a program to meet educational and career goals that cannot otherwise be accomplished through existing college programs. The program is suited for students:

• Who wish to explore potential occupational/technical courses in one or more areas of study
• Who are working and wishing to advance their careers
• Who are undecided about their future
• Who are seeking to pursue a baccalaureate degree
• Who have started a technical program but wish to change direction

Work Environment
Graduates of this program will have the opportunity to be employed or achieve advancement in occupations related to their selected areas of study.

Potential Job Titles
Graduates will obtain positions that will vary according to the individual design of their degrees.

Salary Data
Salaries will vary according to the custom design of each degree.

INDIVIDUALIZED STUDIES – A.S. DEGREE

This degree is designed for students wishing to transfer to a four-year institution to obtain an advanced degree.

Because this degree will be custom designed to meet your education and career goals, there is no sample course sequence. Please discuss your academic goals with a program advisor so they can work with you to develop a sequence.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>SMGT 2950</td>
<td>Prior Experiential Learning Portfolio or INDS1000</td>
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<td>Required Technical Courses*</td>
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<td><strong>Total Credits</strong></td>
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</table>

* Required technical courses must equal a minimum of nine credits from one program and another nine credits from a different program.

** See General Education A.S. degree requirements on page 113.
INDUSTRIAL DISTRIBUTION
Delivery: Daytime and Evening Classes
Start: Fall, Spring or Summer Session, Full- or Part-Time
Location: Apple Valley Site

Major Description
This program provides the knowledge and skills necessary to succeed in the highly rewarding field of industrial distribution. Vital to today’s business economy, distributors serve the industrial market through a variety of products and services. Courses cover business, marketing, management and sales principles along with essential technical subjects.

Work Environment
Distributors are responsible for 50 percent of the total domestic product in the U.S. Professional industrial distributors buy, sell and deliver a vast array of products, working as key links between manufacturers and consumers.

Potential Job Titles
• Customer Service Manager
• Technical Sales Manager
• Field Sales Manager
• Purchasing Manager
• Branch Manager
• Distribution Manager
• Technician
• Commission Sales Manager
• Warehouse Manager

• Median salary (U.S.): $84,000/year
• Top earners (U.S.): $170,000/year

INDUSTRIAL DISTRIBUTION - A.A.S. DEGREE

<table>
<thead>
<tr>
<th>Course Code</th>
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<tr>
<td>ELEC1110</td>
<td>DC Electricity Theory and Lab †</td>
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</tr>
<tr>
<td>ELEC1120</td>
<td>AC Electricity Theory and Lab †</td>
<td>3</td>
</tr>
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<td>ELEC1140</td>
<td>Blueprint Reading for Technicians †</td>
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<tr>
<td>MKTC1000</td>
<td>Principles of Marketing</td>
<td>3</td>
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<tr>
<td>MKTC1100</td>
<td>Fundamentals of Sales</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1082</td>
<td>Distribution, Operations, &amp; Logistics</td>
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<tr>
<td>ELEC2110</td>
<td>Electrical Apparatus Theory</td>
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<td>SMGT1205</td>
<td>Total Quality Management</td>
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<td>SMGT1231</td>
<td>Planning &amp; Project Management</td>
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<td>SMGT1242</td>
<td>Effective Business Communication</td>
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<td>SMGT1250</td>
<td>Managing Customer Service</td>
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<tr>
<td>SMGT2125</td>
<td>International Business</td>
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<tr>
<td>ELEC2970</td>
<td>Internship</td>
<td>1-6</td>
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<tr>
<td>SPEE1020</td>
<td>Interpersonal Communication</td>
<td>3</td>
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<tr>
<td>ENGL1150</td>
<td>Composition I</td>
<td>3</td>
</tr>
<tr>
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<td>Technical Elective*</td>
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</table>

Total Credits 60

TOTAL PROGRAM REQUIREMENTS 60

† Approved substitutions available – see advisor
* Technical Elective - ELEC2970 Internship and/or Technical Elective must total six credits.
** See General Education A.A.S. degree requirements on page 113.
MANAGEMENT FOR AIRLINE PROFESSIONALS

Delivery: Daytime, Evening and Online Classes
Start: Fall, Spring or Summer Session, Full- or Part-Time
Location: Rosemount Campus, Apple Valley Site

Major Description
This program is for professionals with experience in the aviation industry looking to advance their career. Students obtain the supervisory management knowledge and skill sets to enhance their upward career mobility.

Work Environment
Graduates are prepared to fill entry-level management jobs in the aviation industry. Professionals with this degree are employed at municipal and private airports as well as with private and commercial airlines.

Potential Job Titles
- Airline Maintenance Manager
- Airline Ticketing Manager
- Airline Baggage Manager
- Airline Ramp Supervisor
- Supervisor/Manager

Aircraft Maintenance Supervisor
- Median Salary (U.S.): $78,313/year
- Top Earners (U.S.): $88,454/year

MANAGEMENT FOR AIRLINE PROFESSIONALS – A.A.S. DEGREE

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
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<td>Prior Learning Credits (Aviation Experience)</td>
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<td>Technical Elective</td>
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</table>

TOTAL PROGRAM REQUIREMENTS 64 cr.

Please consult your program advisor regarding your academic plans.

* Technical electives may be selected from the SMGT subject area.

Students that take SMGT2950, Prior Experiential Learning Portfolio Development, will receive one elective credit, reducing the technical elective requirement.

** See General Education A.A.S. degree requirements on page 113.
MAJOR DESCRIPTION
Highly individualized based on a student’s technical expertise and educational needs, this program provides the necessary skills to succeed in leadership positions or enhance career mobility. Students who do not have experience in a technical field should consider the Supervisory Management program.

WORK ENVIRONMENT
Working conditions in technical management positions are typically similar to office team settings. Technical professionals fill supervisory and middle management roles in companies and corporations.

POSSIBLE JOB TITLES
- Production Supervisor
- Manager
- Facility Manager
- Line Supervisor
- Maintenance Manager
- Manufacturing Supervisor
- Quality Manager
- Human Resources Manager

SALARY DATA
- Human Resources Manager
  • Salary Range: $52.70-77.39/hour
- Manufacturing Manager
  • Salary Range: $49.60-78.14/hour
MARKETING & SALES

Major Description
Marketing is a vast field with room for multitudes of professions. Experts estimate that more than one-third of all Americans have marketing activities in their positions.

Business Marketing: This program provides skills delivered in the Marketing Communications Specialist certificate along with photography, management, budgeting and accounting, business communications, strategic planning and presentation skills. These degrees can be completed online or in the classroom.

Marketing Communications Specialist: This program delivers knowledge of all general marketing concepts along with basic graphic design and photography. Graduates are versed in graphic design software, Web site construction, preparation of news releases, and organization of publicity events and press conferences. This certificate can be completed online or in the classroom.

Marketing Event Specialist: A marketing event specialist certificate uses knowledge in the areas of publicity, marketing communications writing, promotional marketing, budgeting, scheduling, advertising, and event planning to promote activities involving an event, such as a grand opening, open house, conference, trade show, and social event. These events are designed to bring a product, service, company, or concept to the attention of the public or a targeted audience. This certificate can be completed online or in the classroom.

Marketing Design Specialist: This program delivers knowledge of all general marketing concepts along with basic graphic design and photography. Graduates are versed in graphic design software, Web site construction, preparation of news releases, and organization of publicity events and press conferences. This program is available in the classroom and most courses are also available online.

Sales Specialist: This certificate gives students the skills associated with direct promotion of products and services to potential customers. Training includes basic sales, professional and management sales techniques, essentials of marketing, sales organization and operations, customer relations, professional standards and ethics, and consumer buying behavior. This certificate can be completed online or in the classroom.

Work Environment
Often situated in offices near top managers, marketing professionals manage challenging projects that are both creative and strategic to reach their organization’s goals. Travel is required in many marketing positions.

Potential Job Titles
• Commercial Marketing Specialist
• Marketing Administrator
• Marketing Coordinator
• Brand Manager
• Business Development Specialist
• Media Planner
• Sales Manager
• Marketing Event Coordinator

Salary Data
Sales Manager
• Average Wage: $56.26/hour
• Top Earners: $80/hour

Marketing Manager
• Average Wage: $60.31/hour
• Top Earners: $80/hour
BUSINESS MARKETING - A.S. DEGREE

This degree is designed for students wishing to transfer to a four-year institution to obtain an advanced degree.

<table>
<thead>
<tr>
<th>Course Code</th>
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<td>Fundamentals of Sales</td>
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</tr>
<tr>
<td>MKTC1150</td>
<td>Consumer and Professional Buying Behavior</td>
<td>3</td>
</tr>
<tr>
<td>MKTC2000</td>
<td>Advertising Practices and Procedures</td>
<td>3</td>
</tr>
<tr>
<td>MKTC2060</td>
<td>Proposal Writing</td>
<td>1</td>
</tr>
<tr>
<td>MKTC2220</td>
<td>Promotional Marketing</td>
<td>2</td>
</tr>
<tr>
<td>MKTC2105</td>
<td>Marketing Communications Writing</td>
<td>3</td>
</tr>
<tr>
<td>MKTC2310</td>
<td>Public Relations</td>
<td>3</td>
</tr>
<tr>
<td>MKTC2505</td>
<td>E-Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MKTC2600</td>
<td>Marketing Research</td>
<td>3</td>
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<tr>
<td>MKTC2815</td>
<td>Business Law</td>
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Total Credits 60

TOTAL PROGRAM REQUIREMENTS 60

** See General Education A.S. degree requirements on page 113.

BUSINESS MARKETING SPECIALIST - A.A.S. DEGREE

<table>
<thead>
<tr>
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<td>MKTC1150</td>
<td>Consumer and Professional Buying Behavior</td>
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<td>MKTC2000</td>
<td>Advertising Practices and Procedures</td>
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<td>MKTC2060</td>
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<td>MKTC2105</td>
<td>Marketing Communications Writing</td>
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<tr>
<td>MKTC2220</td>
<td>Promotional Marketing</td>
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<tr>
<td>MKTC2310</td>
<td>Public Relations</td>
<td>3</td>
</tr>
<tr>
<td>MKTC2410</td>
<td>Marketing Visual Communications</td>
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</tr>
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<td>MKTC2505</td>
<td>E-Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MKTC2550</td>
<td>International Marketing</td>
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<td>MKTC2600</td>
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<tr>
<td>MKTC2815</td>
<td>Business Law</td>
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<tr>
<td>MKTC2900</td>
<td>Portfolio and Interviewing</td>
<td>1</td>
</tr>
<tr>
<td>MKTC2970</td>
<td>Internship</td>
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Total Credits 45

General Education

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<tbody>
<tr>
<td>COML1400</td>
<td>Introduction to Computers</td>
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<tr>
<td>ENGL1150</td>
<td>Composition I</td>
<td>3</td>
</tr>
<tr>
<td>SPEE1020</td>
<td>Interpersonal Communication</td>
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<td>Science or Math course</td>
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Total Credits 15

TOTAL PROGRAM REQUIREMENTS 60

* Technical electives may be selected from the following subject areas: MKTC, SMGT, ENTR or ACCT with advisor approval.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
MARKETING COMMUNICATIONS SPECIALIST – CERTIFICATE

MKTC1000 Principles of Marketing 3
MKTC1100 Fundamentals of Sales 3
MKTC1150 Consumer and Professional Buying Behavior 3
MKTC2000 Advertising Practices and Procedures 3
MKTC2220 Promotional Marketing 2
MKTC2310 Public Relations 3
MKTC2410 Marketing Visual Communications 1
MKTC2505 E-Marketing 3
MKTC2600 Marketing Research 3
MKTC2815 Business Law 3
MKTC2900 Portfolio and Interviewing 1

Total Credits 28

TOTAL PROGRAM REQUIREMENTS 28

MARKETING EVENT SPECIALIST – CERTIFICATE

MKTC1000 Principles of Marketing 3
MKTC1100 Fundamentals of Marketing 3
MKTC2000 Advertising Practices and Procedures 3
MKTC2105 Marketing Communications Writing 3
MKTC2220 Promotional Marketing 2
MKTC2310 Public Relations 3
SMGT1160 Fundamental of Meeting, Conference, and Event Management 2
SMGT1161 Advanced Meeting, Conference, and Event Management 3
SMGT1162 Special Event Coordination and Management 3
SMGT1163 Event Promotion 3

Total Credits 28

TOTAL PROGRAM REQUIREMENTS 28

MARKETING DESIGN SPECIALIST – A.A.S. DEGREE

MKTC1000 Principles of Marketing 3
MKTC1100 Fundamentals of Sales 3
MKTC1150 Consumer and Professional Buying Behavior 3
MKTC2000 Advertising Practices and Procedures 3
MKTC2105 Marketing Communications Writing 3
MKTC2220 Promotional Marketing 2
MKTC2310 Public Relations 3
MKTC2410 Marketing Visual Communications 1
MKTC2505 E-Marketing 3
MKTC2550 International Marketing 3
MKTC2600 Marketing Research 3
MKTC2815 Business Law 3
MKTC2900 Portfolio and Interviewing 1
MKTC2970 Internship 3
VCOM1010 Introduction to Photoshop 2
VCOM1430 Introduction to InDesign 2
VCOM1410 Introduction to Illustrator 2
VCOM2685 Web Page Construction I 2

Total Credits 45

General Education

COML1400 Introduction to Computers 3
ENGL1150 Composition I 3
SPEE1020 Interpersonal Communications 3
Science or Math course 3
General Education Elective** 3

Total Credits 15

TOTAL PROGRAM CREDITS 60

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
### MARKETING DESIGN SPECIALIST – DIPLOMA

<table>
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<td>MKTC1000</td>
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<td>Fundamentals of Sales</td>
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<td>MKTC1150</td>
<td>Consumer and Professional Buying Behavior</td>
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<td>MKTC2000</td>
<td>Advertising Practices and Procedures</td>
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<td>MKTC2220</td>
<td>Promotional Marketing</td>
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</tr>
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<td>MKTC2310</td>
<td>Public Relations</td>
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<td>MKTC2410</td>
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<td>Portfolio and Interviewing</td>
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<tr>
<td>VCOM1010</td>
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<td>VCOM1430</td>
<td>Introduction to InDesign</td>
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<td>VCOM1435</td>
<td>Proofreading Fundamentals</td>
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<tr>
<td>VCOM1410</td>
<td>Introduction to Illustrator</td>
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<td>VCOM2685</td>
<td>Web Page Construction I</td>
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**Total Credits** 37

### General Education

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<tr>
<td>COML1400</td>
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<tr>
<td>ENGL1150</td>
<td>Composition I (or ENGL1000)</td>
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<td>SPEE1020</td>
<td>Interpersonal Communications</td>
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**Total Credits** 9

**TOTAL PROGRAM CREDITS** 46

### SALES MANAGEMENT SPECIALIST – A.A.S. DEGREE

<table>
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<tr>
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<td>MKTC1100</td>
<td>Fundamentals of Sales</td>
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<td>Consumer and Professional Buying Behavior</td>
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<td>MKTC1200</td>
<td>Professional Sales</td>
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<td>MKTC2000</td>
<td>Advertising Practices and Procedures</td>
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<td>MKTC2060</td>
<td>Proposal Writing</td>
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<td>MKTC2505</td>
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<td>Portfolio and Interviewing</td>
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<td>MKTC2970</td>
<td>Internship</td>
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<tr>
<td>SMGT2001</td>
<td>Management Skills I</td>
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<td>SMGT2002</td>
<td>Management Skills II</td>
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<tr>
<td>SMGT2003</td>
<td>Management Skills III</td>
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<td>SMGT2400</td>
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**Technical Elective* | 2

**Total Credits** 45

### General Education

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<tr>
<td>ENGL1150</td>
<td>Composition I</td>
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<tr>
<td>SPEE1020</td>
<td>Interpersonal Communications</td>
<td>3</td>
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<tr>
<td>Science or Math course</td>
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**General Education Elective** | 3

**Total Credits** 15

**TOTAL PROGRAM CREDITS** 60

* Technical electives may be selected from the following subject areas: MKTC, SMGT, ENTR or ACCT with advisor approval.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.

### SALES SPECIALIST – CERTIFICATE

<table>
<thead>
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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKTC1000</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MKTC1100</td>
<td>Fundamentals of Sales</td>
<td>3</td>
</tr>
<tr>
<td>MKTC1150</td>
<td>Consumer and Professional Buying Behavior</td>
<td>3</td>
</tr>
<tr>
<td>MKTC1200</td>
<td>Professional Sales</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits** 12

**TOTAL PROGRAM REQUIREMENTS** 12
# MEETING & EVENT MANAGEMENT

## Major Description

This program prepares students to enter the hospitality industry, the largest and fastest growing in the world. Coursework provides the knowledge and skill sets to offer premier services and guest satisfaction in meeting, conference and event management businesses, marketing and public relations firms, nonprofit and for-profit corporations, hotels, golf and country clubs, casinos, resorts, and other industry attractions.

## Work Environment

A fast-paced and demanding career, meeting and event management requires the ability to oversee multiple operations simultaneously, face numerous deadlines, and orchestrate the activities of several different groups of people. Meeting and convention planners spend the majority of their time in offices, but frequently work on site at hotels, convention centers or other meeting locations.

## Hospitality Management Emphasis

- For positions in hotels, convention centers, resorts plus other nontraditional venues

## Casino Management Emphasis

- For positions in casinos and other gaming venues

## Technical Emphasis

- For positions in hotels, convention centers, resorts plus other nontraditional venues

## Potential Job Titles

- Conference Organizer
- Event Planning Manager
- Special Events Coordinator
- Meeting Planner
- Conference Producer
- Convention Services
- Group Sales

## Salary Data

- Average Wage: $22.43/hour
- Top Earners: $31.70/hour

---

### MEETING & EVENT MANAGEMENT – A.A.S. DEGREE

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>SMGT1160</td>
<td>Fundamentals of Meeting, Conference and Event Management</td>
<td>2</td>
</tr>
<tr>
<td>SMGT1161</td>
<td>Advanced Meeting, Conference and Event Management</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1162</td>
<td>Special Event Coordination and Management</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1163</td>
<td>Event Promotion</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1165</td>
<td>Lodging Operations</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1168</td>
<td>Hospitality Space and Logistics Management</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1169</td>
<td>Hospitality Risk Management</td>
<td>2</td>
</tr>
<tr>
<td>SMGT1167</td>
<td>Meeting and Event Sponsorship</td>
<td>3</td>
</tr>
<tr>
<td>SMGT2001</td>
<td>Management Skills I, Foundations in Mgmt.</td>
<td>3</td>
</tr>
<tr>
<td>SMGT2002</td>
<td>Management Skills II, Planning and Organizing</td>
<td>3</td>
</tr>
<tr>
<td>SMGT2003</td>
<td>Management Skills III, Leading and Controlling</td>
<td>3</td>
</tr>
</tbody>
</table>

**Technical Emphasis**

- For positions in hotels, convention centers, resorts plus other nontraditional venues

**Total Credits:** 40

### General Education

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>COML1400</td>
<td>Introduction to Computers</td>
<td>3</td>
</tr>
<tr>
<td>ENGL1150</td>
<td>Composition I</td>
<td>3</td>
</tr>
<tr>
<td>SPEE1020</td>
<td>Interpersonal Communications</td>
<td>3</td>
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<tr>
<td>PHIL1200</td>
<td>Critical Thinking</td>
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</tbody>
</table>

**General Education Elective:**

- Select General Education electives from any MnTC goal area.

**Total Credits:** 20

**TOTAL PROGRAM REQUIREMENTS:** 60

---

Students must select one of the emphasis options listed on the following page to complete their technical emphasis.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.

---

1. SMGT1166, 1168 and 1169 are approved substitutions for this course.

---

**See pages 114-116 for MnTC goal areas.**
### Hospitality Management Emphasis ††

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>SMGT1660</td>
<td>Introduction to Hospitality and Tourism</td>
<td>2</td>
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<tr>
<td>SMGT1670</td>
<td>Lodging Systems and Technology</td>
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<tr>
<td>SMGT1675</td>
<td>Hotel Front Office Management</td>
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</tr>
<tr>
<td>SMGT1685</td>
<td>Hospitality and Tourism Guest Services</td>
<td>2</td>
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<td><strong>Total Credits</strong></td>
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### Casino Management Emphasis ††

<table>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>SMGT1970</td>
<td>Casino Operations</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1975</td>
<td>Casino Products: Protections and Probabilities</td>
<td>3</td>
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<tr>
<td></td>
<td>Technical Elective*</td>
<td>3</td>
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<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

* Technical electives may be selected from the SMGT subject area with faculty approval.

### MEETING & EVENT MANAGEMENT – CERTIFICATE

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMGT1160</td>
<td>Fundamentals of Meeting, Conference, and Event Management</td>
<td>2</td>
</tr>
<tr>
<td>SMGT1161</td>
<td>Advanced Meeting, Conference, and Event Management</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1162</td>
<td>Special Event Coordination and Management</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1163</td>
<td>Event Promotion</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1167</td>
<td>Meeting and Event Sponsorship †</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1695</td>
<td>Hospitality Risk Management</td>
<td>2</td>
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<tr>
<td><strong>Total Credits</strong></td>
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</tbody>
</table>

† SMGT1166, 1168, and 1169 are approved substitutions for this course.
MULTICULTURAL MANAGEMENT

Delivery: Evening and Online Classes
Start: Fall, Spring or Summer Session, Full- or Part-Time
Location: Apple Valley Site

Major Description
These diplomas provide students with the skills and knowledge necessary to succeed in today’s multicultural business environments. Skills learned are universal and can be applied to organizations, including manufacturing, event hospitality, retail, health services and other for-profit and nonprofit organizations.

Work Environment
Graduates with this training perform successfully in leadership positions in multicultural agencies, companies, corporations and organizations in the public, private and nonprofit sectors.

Potential Job Titles
• Team Leader
• Manufacturing Supervisor
• Warehouse Manager
• Production Foreman
• Diversity Coordinator
• Human Resources Manager
• Frontline Supervisor
• Human Resources Specialist

Salary Data
• Average Wage: $27.95/hour
• Top Earners: $39.96/hour

MULTICULTURAL LEADERSHIP – DIPLOMA

SMGT1000 Principles of Supervision 3
SMGT1022 Leadership 3
SMGT1028 Management Effectiveness 3
SMGT1601 Financial Management 2
SMGT1776 Organizational Behavior 3
SMGT2105 Managing Diversity 3
SMGT2110 Leading a Multicultural Workforce 3
SMGT2115 Multicultural Mentorship I 2
SMGT2116 Multicultural Mentorship II 1
SMGT2120 Multicultural Conflict Resolution 2
SMGT2125 International Business 3
SMGT2130 Creativity and Problem Solving 2
SPEE1020 Interpersonal Communication 3

Total Credits 33

TOTAL PROGRAM REQUIREMENTS 33
## MULTICULTURAL HUMAN RESOURCES MANAGEMENT – DIPLOMA

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>SMGT1033</td>
<td>Business Law &amp; Ethics</td>
<td>3</td>
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<tr>
<td>SMGT1405</td>
<td>Managing Performance</td>
<td>3</td>
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<tr>
<td>SMGT1441</td>
<td>Intro to Human Resource Management</td>
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</tr>
<tr>
<td>SMGT1470</td>
<td>Safety and Compliance Management</td>
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<tr>
<td>SMGT1875</td>
<td>Training and Developing Employees</td>
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<tr>
<td>SMGT2105</td>
<td>Managing Diversity</td>
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<tr>
<td>SMGT2110</td>
<td>Leading a Multicultural Workforce</td>
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<tr>
<td>SMGT2115</td>
<td>Multicultural Mentorship I</td>
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<tr>
<td>SMGT2116</td>
<td>Multicultural Mentorship II</td>
<td>1</td>
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<tr>
<td>SMGT2120</td>
<td>Multicultural Conflict Resolution</td>
<td>2</td>
</tr>
<tr>
<td>SMGT2125</td>
<td>International Business</td>
<td>3</td>
</tr>
<tr>
<td>SMGT2130</td>
<td>Creativity and Problem Solving</td>
<td>2</td>
</tr>
<tr>
<td>SPEE1020</td>
<td>Interpersonal Communication</td>
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Total Credits: 33

**TOTAL PROGRAM REQUIREMENTS**: 33

## MULTICULTURAL SUPERVISION – CERTIFICATE

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>SMGT2105</td>
<td>Managing Diversity</td>
<td>3</td>
</tr>
<tr>
<td>SMGT2110</td>
<td>Leading a Multicultural Workforce</td>
<td>3</td>
</tr>
<tr>
<td>SMGT2115</td>
<td>Multicultural Mentorship I</td>
<td>2</td>
</tr>
<tr>
<td>SMGT2116</td>
<td>Multicultural Mentorship II</td>
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<tr>
<td>SMGT2120</td>
<td>Multicultural Conflict Resolution</td>
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<tr>
<td>SMGT2125</td>
<td>International Business</td>
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</tbody>
</table>

Total Credits: 14

**TOTAL PROGRAM REQUIREMENTS**: 14
REAL ESTATE/PROPERTY MANAGEMENT

Major Description
This program prepares students to manage and market residential, commercial, industrial and investment real estate. Students are trained to estimate the value of residential and investment properties across the nation. Coursework includes 90 hours of pre-licensing education required for the Minnesota Real Estate license examination.

Work Environment
Property Manager: A property manager is responsible for making sure the property they manage meets the owner’s goals and objectives. This work includes screening prospective tenants, showing rental space and/or apartments, negotiating leases, problem solving and customer service. This work will lead to a career in managing and training other property managers.

Real Estate Sales: A real estate salesperson will learn how to qualify prospective buyers, show properties, write and negotiate contracts, estimate the value of residential and/or investment properties and market homes, condominiums, townhomes and investment properties.

Potential Job Titles
• Apartment Rental Agent
• Real Estate Agent
• Realtor
• Real Estate Closer
• Condominium Manager
• Facilities Coordinator
• Housing Manager
• Property Administrator

Salary Data
Real Estate Agent
• Average Wage: $18.74/hour
• Top Earners: $32.57/hour

Property Manager
• Average Wage: $28.30/hour
• Top Earners: $49.18/hour

REAL ESTATE/PROPERTY MANAGEMENT – A.A.S. DEGREE

PMGT1101 Real Estate I 2
PMGT1102 Real Estate II 2
PMGT1204 Real Estate III (Law) 2
PMGT1200 Introduction to Property Management 1
PMGT1205 Loan Application and Processing 1
PMGT1207 Instruments of Real Estate Finance 1
PMGT1210 Appraisal Process 1
PMGT1212 Residential Appraisal Workshop 1
PMGT1213 Managing Residential Properties 1
PMGT1214 Life and Safety Issues 1
PMGT1215 Maintenance Management 1
PMGT1216 Managing Commercial/Industrial Properties 1
PMGT1217 Risk Management 1
PMGT1219 Leases and Tenant Relations 1
PMGT1224 Income Capitalization Analysis 1
PMGT1225 MN Landlord/Tenant Law 1
PMGT1228 Community Association Management 1
PMGT1229 Subsidized Housing 1
PMGT1230 Income Property Marketing 1
PMGT1232 Cash Flow Analysis 1
PMGT1302 Planning and Operating a Small Business 1
PMGT1304 Marketing Strategies for Small Business 1
PMGT1401 Real Estate Math and Calculator Basics 1
PMGT2020 Negotiating for Agreement 1
Technical Elective* 17
General Education** 20

Total Credits 64

TOTAL PROGRAM REQUIREMENTS 64

* Technical electives may be selected from the following subject areas: PMGT, ENTR, MKTC, ISTC, SMGT, LAHT, ACCT or up to 9 credits of internship.

** See General Education A.A.S. degree requirements on page 113.
REAL ESTATE/PROPERTY MANAGEMENT - DIPLOMA

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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<tr>
<td>PMGT1101</td>
<td>Real Estate I</td>
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<tr>
<td>PMGT1102</td>
<td>Real Estate II</td>
<td>2</td>
</tr>
<tr>
<td>PMGT1204</td>
<td>Real Estate III (Law)</td>
<td>2</td>
</tr>
<tr>
<td>PMGT1200</td>
<td>Introduction to Property Management</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1205</td>
<td>Loan Application and Processing</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1207</td>
<td>Instruments of Real Estate Finance</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1210</td>
<td>Appraisal Process</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1215</td>
<td>Residential Appraisal Workshop</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1219</td>
<td>Managing Residential Properties</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1214</td>
<td>Life and Safety Issues</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1215</td>
<td>Maintenance Management</td>
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</tr>
<tr>
<td>PMGT1216</td>
<td>Managing Commercial/Industrial Properties</td>
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</tr>
<tr>
<td>PMGT1217</td>
<td>Risk Management</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1219</td>
<td>Leases and Tenant Relations</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1224</td>
<td>Income Capitalization Analysis</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1225</td>
<td>MN Landlord/Tenant Law</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1228</td>
<td>Community Association Management</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1229</td>
<td>Subsidized Housing</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1230</td>
<td>Income Property Marketing</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1232</td>
<td>Cash Flow Analysis</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1234</td>
<td>Planning and Operating a Small Business</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1241</td>
<td>Marketing Strategies for Small Business</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1220</td>
<td>Negotiating for Agreement</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1223</td>
<td>Technical Elective*</td>
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**Total Credits 36**

**General Education**

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<tbody>
<tr>
<td>COML1400</td>
<td>Introduction to Computers</td>
<td>3</td>
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<tr>
<td>ENGL1150</td>
<td>Composition I (or ENGL1000)</td>
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<tr>
<td>SPEE1020</td>
<td>Interpersonal Communications</td>
<td>3</td>
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**Total Credits 9**

**TOTAL PROGRAM REQUIREMENTS 45**

* Technical electives may be selected from the following subject areas: PMGT, ENTR, MKTC, ISTC, SMGT, LAHT, ACCT or up to 9 credits of internship.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.

PROPERTY MANAGEMENT - CERTIFICATE

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
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<td>PMGT1200*</td>
<td>Introduction to Property Management</td>
<td>1</td>
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<tr>
<td>PMGT1213*</td>
<td>Managing Residential Property</td>
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</tr>
<tr>
<td>PMGT1214*</td>
<td>Life and Safety Issues</td>
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</tr>
<tr>
<td>PMGT1215</td>
<td>Maintenance Management</td>
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</tr>
<tr>
<td>PMGT1216*</td>
<td>Managing Commercial/Industrial Properties</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1217</td>
<td>Risk Management</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1219</td>
<td>Leases and Tenant Relations</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1224*</td>
<td>Income Capitalization Analysis</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1225</td>
<td>MN Landlord/Tenant Law</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1228*</td>
<td>Community Association Management</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1229</td>
<td>Subsidized Housing</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1230</td>
<td>Income Property Marketing</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1232*</td>
<td>Cash Flow Analysis</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1234*</td>
<td>Marketing Strategies for Small Business</td>
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<tr>
<td>PMGT2020*</td>
<td>Negotiating for Agreement</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total Credits 16**

**TOTAL PROGRAM REQUIREMENTS 16**

*These courses have been approved by the Minnesota Department of Commerce for 15 hours of Real Estate Continuing Education.

GENERAL REAL ESTATE - CERTIFICATE

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PMGT1101</td>
<td>Real Estate I</td>
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<td>PMGT1102</td>
<td>Real Estate II</td>
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<td>PMGT1204</td>
<td>Real Estate III (Law)</td>
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<tr>
<td>PMGT1205*</td>
<td>Loan Application/Processing</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1207*</td>
<td>Financing Instruments</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1210*</td>
<td>Appraisal Process</td>
<td>1</td>
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<tr>
<td>PMGT1212*</td>
<td>Residential Appraisal Workshop</td>
<td>1</td>
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<tr>
<td>PMGT1224*</td>
<td>Income Capitalization Analysis</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1228*</td>
<td>Community Association Management</td>
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</tr>
<tr>
<td>PMGT1232*</td>
<td>Cash Flow Analysis</td>
<td>1</td>
</tr>
<tr>
<td>PMGT1302*</td>
<td>Planning and Operating a Small Business</td>
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</tr>
<tr>
<td>PMGT1304*</td>
<td>Marketing Strategies for Small Business</td>
<td>1</td>
</tr>
<tr>
<td>PMGT2020*</td>
<td>Negotiating for Agreement</td>
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</tbody>
</table>

**Total Credits 16**

**TOTAL PROGRAM REQUIREMENTS 16**

*These courses have been approved by the Minnesota Department of Commerce for 15 hours of Real Estate Continuing Education.
SUPERVISORY MANAGEMENT

Delivery: Daytime, Evening and Online Classes
Start: Fall, Spring or Summer Session, Full- or Part-Time
Location: Apple Valley Site

Major Description
This program provides working adults with the skills and knowledge necessary to succeed in today’s increasingly competitive business environment. Skills learned are universal and can be applied to business entrepreneurship or any type of business or enterprise, including manufacturing, event hospitality, retail, health services and other for-profit and nonprofit organizations. Students can individualize their degrees by selecting an emphasis area through the completion of two of the following certificates:

- Business Entrepreneur
- Human Resources
- Quality Improvement
- Meeting and Event Management
- Multicultural Supervision

Work Environment
Graduates with this training perform successfully in leadership positions in entrepreneurial enterprises, government agencies, companies, corporations and organizations in the public, private and nonprofit sectors.

Potential Job Titles
- Team Leader
- Supervisor
- Manager
- Human Resources Specialist/Manager
- Quality Specialist
- Event Manager

Salary Data
- Average wage: $27.95/hour
- Top earners: $39.96/hour

SUPERVISORY MANAGEMENT – A.A.S. DEGREE

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>SMGT1000</td>
<td>Principles of Supervision</td>
<td>3</td>
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<tr>
<td>SMGT1022</td>
<td>Leadership</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1028</td>
<td>Management Effectiveness</td>
<td>3</td>
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<tr>
<td>SMGT1601</td>
<td>Financial Management</td>
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<tr>
<td>SMGT1776</td>
<td>Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Technical Elective*</td>
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<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td>15-19</td>
</tr>
</tbody>
</table>

Graduation Project
Graduation Project must have advisor approval and registration in the last semester of attendance. Credits are variable, based on project scope. Substitutions may be offered by another program. See advisor for details.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td>1-6</td>
</tr>
</tbody>
</table>

Technical Emphasis **

Choose two of the following emphasis area certificates:
- Business Entrepreneur Certificate 18
- Human Resource Development Certificate 17
- Meeting and Event Management Certificate 16
- Multicultural Supervision Certificate 14
- Quality Improvement Certificate 16

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
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</tbody>
</table>

TOTAL PROGRAM REQUIREMENTS 64

* Technical electives may be selected from the following subject areas: SMGT, ACCT, ENTR, MKTC or OFFC.

** Students must select one of the emphasis options listed on the following page to complete their technical emphasis.
## Supervisory Leadership – Certificate

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMGT1000</td>
<td>Principles of Supervision</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1022</td>
<td>Leadership</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1028</td>
<td>Management Effectiveness</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1601</td>
<td>Financial Management</td>
<td>2</td>
</tr>
<tr>
<td>SMGT1776</td>
<td>Organizational Behavior</td>
<td>3</td>
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<tr>
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<td>General Education Elective</td>
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<td><strong>Total Credits</strong></td>
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</table>

**Total Program Requirements: 17 Credits**

## Business Entrepreneur – Certificate

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENTR1170</td>
<td>Introduction to Small Business</td>
<td>2</td>
</tr>
<tr>
<td>ENTR1440</td>
<td>Successful Marketing for Small Business</td>
<td>4</td>
</tr>
<tr>
<td>ENTR1650</td>
<td>Selling Success for the Entrepreneur</td>
<td>3</td>
</tr>
<tr>
<td>ENTR1860</td>
<td>Business Plan Development</td>
<td>3</td>
</tr>
<tr>
<td>ENTR1900</td>
<td>Capitalizing a Small Business</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>or OFFC1240 or SMGT1601</td>
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</tr>
<tr>
<td>SMGT1033</td>
<td>Business Law and Ethics</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1250</td>
<td>Managing Customer Service</td>
<td>1</td>
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<tr>
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<td></td>
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</table>

**Total Program Requirements: 18 Credits**

Additional certificates listed on page 48.
## Human Resource Development - Certificate **

<table>
<thead>
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<th>Credits</th>
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<tbody>
<tr>
<td>SMGT1033</td>
<td>Business Law &amp; Ethics</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1405</td>
<td>Managing Performance</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1441</td>
<td>Intro to Human Resource Management</td>
<td>3</td>
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<tr>
<td>SMGT1470</td>
<td>Safety and Compliance Management</td>
<td>2</td>
</tr>
<tr>
<td>SMGT1875</td>
<td>Training and Developing Employees</td>
<td>3</td>
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<tr>
<td>SPEE1020</td>
<td>Interpersonal Communication</td>
<td>3</td>
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<tr>
<td></td>
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**Total Program Requirements 17**

## Meeting and Event Management - Certificate **

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<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>SMGT1160</td>
<td>Fundamentals of Meeting, Conference, and Event Management</td>
<td>2</td>
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<tr>
<td>SMGT1161</td>
<td>Advanced Meeting, Conference, and Event Management</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1162</td>
<td>Special Event Coordination and Management</td>
<td>3</td>
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<tr>
<td>SMGT1163</td>
<td>Event Promotion</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1167</td>
<td>Meeting and Event Sponsorship †</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1695</td>
<td>Hospitality Risk Management</td>
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<tr>
<td></td>
<td><strong>Total Credits</strong></td>
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</tbody>
</table>

**Total Program Requirements 16**

† SMGT1166, 1168, and 1169 are approved substitutions for this course.

## Multicultural Supervision - Certificate **

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>SMGT2105</td>
<td>Managing Diversity</td>
<td>3</td>
</tr>
<tr>
<td>SMGT2110</td>
<td>Leading a Multicultural Workforce</td>
<td>3</td>
</tr>
<tr>
<td>SMGT2115</td>
<td>Multicultural Mentorship I</td>
<td>2</td>
</tr>
<tr>
<td>SMGT2116</td>
<td>Multicultural Mentorship II</td>
<td>1</td>
</tr>
<tr>
<td>SMGT2120</td>
<td>Multicultural Conflict Resolution</td>
<td>2</td>
</tr>
<tr>
<td>SMGT2125</td>
<td>International Business</td>
<td>3</td>
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<td></td>
<td><strong>Total Credits</strong></td>
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</table>

**Total Program Requirements 14**

## Quality Improvement - Certificate **

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>SMGT1205</td>
<td>Total Quality Management</td>
<td>4</td>
</tr>
<tr>
<td>SMGT1260</td>
<td>Managing Teams</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1242</td>
<td>Effective Business Communications</td>
<td>3</td>
</tr>
<tr>
<td>SMGT1231</td>
<td>Planning and Project Management</td>
<td>2</td>
</tr>
<tr>
<td>SMGT1250</td>
<td>Managing Customer Service</td>
<td>1</td>
</tr>
<tr>
<td>ENGL1150</td>
<td>Composition I</td>
<td>3</td>
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<tr>
<td></td>
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</tbody>
</table>

**Total Program Requirements 16**
PROGRAMS OF STUDY

Architectural Technology  51
Interior Design  52
Landscape Horticulture  54
Visual Communications  56-66
  - Applied Visual Arts  56
  - Electronic Publishing  58
  - Graphic Design Technology  60
  - Multimedia & Web Design  62
  - Photographic Imaging Technology  63
  - Photography  65
Wood Finishing Technology  66

EXCELLENCE BY DESIGN

Our Design programs unite the beauty of ancient traditions with modern technology. Our instructors use their industry experience to bring unique and valuable perspectives to the classroom.

In every aspect of the modern world, design stands at the heart of communication, informing, persuading, entertaining, enlightening and delighting. Offering a full spectrum of design opportunities, our Design programs produce graduates who not only possess superb technical skills and strong design fundamentals, but also have experience in critical thinking, sustainability, civic engagement and collaborative projects.

TRAITS OF THE TRADE

Successful professionals in the design fields have personalities that are:

• Creative
• Imaginative
• Attuned to shape and symmetry
• At ease with dimensional thinking
• Self-disciplined
• Attentive to detail
• Computer savvy
• Inquisitive
• Individualistic

Unless otherwise specified, salary data is sourced from isseek.org.
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DEAN

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Ph.D., University of Kentucky  
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“Design must seduce, shape, and perhaps more importantly, evoke an emotional response.”  
— April Greiman —
ARCHITECTURAL TECHNOLOGY

Delivery: Daytime Classes
Start: Fall Semester, Full-Time
Location: Rosemount Campus

Major Description
Students use design techniques and procedures to develop and prepare construction drawings for residential and commercial buildings. Students work in an environment patterned after the most up-to-date architectural offices. Students are taught computer-aided design and drafting (CAD) and architectural drafting standards. Realistic architectural projects in the course provide an excellent mix of technical training and creative problem solving.

Work Environment
Graduates of this program find employment in many related areas: architectural firms and professional design offices, construction, product sales, estimating or managerial departments of construction firms or material manufacturing companies. As architectural technicians acquire experience, they have the potential to gain more responsibility and advance into project management positions.

Potential Job Titles
- CAD Technician
- AutoCAD Technician
- Computer-aided drafting and design drafter
- Draftsperson
- Architectural drafter
- Drafter
- Architectural Designer

Salary Data
- Average Wage: $23.78/hour
- Top Earners: $33.24/hour

ARCHITECTURAL TECHNOLOGY – A.A.S. DEGREE

First Year - First Semester
- ARCT1100 Architectural Studio I 8
- ARCT1103 Building Technology I 3
- ARCT1300 Intro to SketchUp Modeling 3
- ARCT1107 CAD I 3
- Total Credits 17

First Year - Second Semester
- ARCT1200 Architectural Studio II 8
- ARCT1203 Building Technology II 3
- ARCT1207 CAD II 3
- ARTS1300 History of Architecture 4
- Total Credits 18

Second Year - First Semester
- ARCT2100 Architectural Studio III 8
- ARCT2103 Building Technology III 3
- ARCT2107 CAD III 3
- General Education Elective** 5
- Total Credits 19

Second Year - Second Semester
- ARCT2200 Architectural Studio IV 5
- ARCT2970 Internship 5
- ARCT2210 Architectural Technology Portfolio 2
- SPEE1020 Interpersonal Communication 3
- ENGL1150 Composition I 3
- General Education Elective** 6
- Total Credits 19

TOTAL PROGRAM REQUIREMENTS 72

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

* Technical electives may be selected from the following subject area: ARCT.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
INTERIOR DESIGN

Major Description
This program prepares students to enter the interior design profession. Developing skills and knowledge to design functional and aesthetically pleasing environments, students use design theory, interior materials, building codes, manual and computer aided drafting, three-dimensional drawings, and sustainable design approaches to prepare design solutions for residential, kitchen and bath, and commercial projects.

Work Environment
Interior designers work closely with clients. They frequently work as members of a design team. Working in a highly competitive field, utilizing the design process is critical to meeting project deadlines.

Potential Job Titles
• Commercial Interior Designer
• Kitchen and Bath Designer
• Residential Interior Designer
• Interior Design Coordinator
• Facilities Coordinator
• Store Planner

Salary Data
• Average Wage: $23.37/hour
• Top Earners: $34.47/hour

INTERIOR DESIGN – A.A.S. DEGREE

First Year - First Semester
IDES1100 Design Fundamentals 4
IDES1110 Drafting for Interiors 4
IDES1120 Critical Thinking and Programming 4
IDES1135 Visual and Verbal Presentation 3
Total Credits 15

First Year - Second Semester
IDES1206 Residential Studio I 3
IDES1217 Commercial Studio I 3
ENGL1150 Composition I 3
SPEE1020 Interpersonal Communication 3
Total Credits 12

Second Year - First Semester
IDES2106 Color and Light 3
IDES2110 Materials, Estimating, and Specifications 3
General Education** 9
Total Credits 15

Second Year - Second Semester
IDES2205 Computer Aided Drafting 3
IDES2130 History of Art, Architecture, and Interiors 4
General Education** 6
Total Credits 13

Third Year - First Semester
IDES2100 Interior Design Career Directions 1
IDES2136 Commercial Studio II 4
IDES2146 Residential Studio II (Kitchen and Bath) 4
General Education** 6
Total Credits 15

Third Year - Second Semester
IDES2200 Professional Business Practices and Sales 3
IDES2210 Senior Studio 5
IDES2970 Internship 4
General Education** 3
Total Credits 15

TOTAL PROGRAM REQUIREMENTS 85

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

** General Education – Students must select one course from each of the following Minnesota Transfer Curriculum Goal areas: 3, 4, 5, 8, and 10; and nine additional credits from any MnTC Goal area. See pages 114-116 for MnTC goal areas.
INTERIOR DESIGN - DIPLOMA

First Year - First Semester
IDES1100 Design Fundamentals 4
IDES1110 Drafting for Interiors 4
IDES1120 Critical Thinking and Programming 4
IDES1135 Visual and Verbal Presentation 3
COML1400 Introduction to Computers 3
Total Credits 18

First Year - Second Semester
IDES1206 Residential Studio I 3
IDES1217 Commercial Studio I 3
IDES1225 Computer Aided Drafting 3
IDES1230 History of Art, Architecture, and Interiors 4
ENGL1150 Composition I 3
Total Credits 16

Second Year - First Semester
IDES2100 Interior Design Career Directions 1
IDES2106 Color and Light 3
IDES2110 Materials, Estimating, and Specifications 3
IDES2136 Commercial Studio II 4
IDES2146 Residential Studio II (Kitchen and Bath) 4
Total Credits 15

Second Year - Second Semester
IDES2200 Professional Business Practices and Sales 3
IDES2210 Senior Studio 5
IDES2970 Internship 4
SPEE1020 Interpersonal Communication 3
Total Credits 15

TOTAL PROGRAM REQUIREMENTS 64

This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.
LANDSCAPE HORTICULTURE

Major Description
This program provides the technical and business skills needed to succeed in the landscape industry. First-year students learn the fundamental science and technical skills related to all fields of landscape horticulture. Second-year students may elect to specialize in one of three interest areas:

- Landscape Design and Sales
- Landscape Construction
- Greenhouse Production

Work Environment
Landscape professionals design, install and care for residential, commercial and public landscapes. They find work with companies that provide landscape design, construction and maintenance services, as well as garden centers, nurseries, golf courses and municipal parks and public works departments.

Potential Job Titles
- Landscape Designer/Project Manager
- Landscape Construction/Maintenance Supervisor
- Professional Gardener
- Turf & Grounds Manager
- Irrigation Technician
- Plant Production Specialist
- Hardscape Technician

Salary Data
- Average wage: $14/hour
- Top Earners: $20.85/hour

LANDSCAPE HORTICULTURE – A.A.S. DEGREE

First Year - First Semester
LAHT1010 Soil Science 3
LAHT1100 Woody Plant Materials I 2
LAHT1200 Plant Pests 3
LAHT1300 Landscape Construction I 3
LAHT1502 Safety and Equipment 1
LAHT1510 Landscape Mathematics 1
COML1400 Introduction to Computers 3
Total Credits 16

First Year - Second Semester
LAHT1000 Plant Science 2
LAHT1110 Woody Plant Materials II 2
LAHT1310 Plant Maintenance 2
LAHT1320 Turf Management 3
LAHT1420 Protected Horticulture 3
LAHT1600 Landscape Design I 3
LAHT2970 Supervised Occupational Experience I 1
LAHT2970 Supervised Occupational Experience II 1
General Education Elective (MnTC Goal 3 or 4)** 4
Total Credits 21

Second Year - First Semester
LAHT2000 Herbaceous Plant Materials 2
LAHT2510 Landscape Estimating 3
ENGL1150 Composition I 3
SPEE1020 Interpersonal Communication 3
Technical Elective* 3
General Education Elective** 3
Total Credits 17

Second Year - Second Semester
ACCT1005 Principles of Bookkeeping 2
LAHT2500 Landscape Business Management 4
LAHT2970 Supervised Occupational Experience III 1
LAHT2970 Supervised Occupational Experience IV 1
Technical Elective* 3
General Education Elective** 7
Total Credits 18

TOTAL PROGRAM REQUIREMENTS 72

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

* Technical electives may be selected from the following subject area: LAHT.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
**LANDSCAPE HORTICULTURE – DIPLOMA**

**First Year - First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>LAHT1010</td>
<td>Soil Science</td>
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<tr>
<td>LAHT1100</td>
<td>Woody Plant Materials I</td>
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<tr>
<td>LAHT1200</td>
<td>Plant Pests</td>
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<tr>
<td>LAHT1300</td>
<td>Landscape Construction I</td>
<td>3</td>
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<tr>
<td>LAHT1502</td>
<td>Safety and Equipment</td>
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<td>LAHT1510</td>
<td>Landscape Mathematics</td>
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<tr>
<td>COML1400</td>
<td>Introduction to Computers</td>
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**Total Credits** 16

**First Year - Second Semester**

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<thead>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>LAHT1000</td>
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<tr>
<td>LAHT1110</td>
<td>Woody Plant Materials II</td>
<td>2</td>
</tr>
<tr>
<td>LAHT1310</td>
<td>Plant Maintenance</td>
<td>2</td>
</tr>
<tr>
<td>LAHT1320</td>
<td>Turf Management</td>
<td>3</td>
</tr>
<tr>
<td>LAHT1420</td>
<td>Protected Horticulture</td>
<td>3</td>
</tr>
<tr>
<td>LAHT1600</td>
<td>Landscape Design I</td>
<td>3</td>
</tr>
<tr>
<td>LAHT2970</td>
<td>Supervised Occupational Experience I</td>
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<tr>
<td>LAHT2970</td>
<td>Supervised Occupational Experience II</td>
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**Total Credits** 17

**Second Year - First Semester**

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<tr>
<td>LAHT2000</td>
<td>Herbaceous Plant Materials</td>
<td>2</td>
</tr>
<tr>
<td>LAHT2510</td>
<td>Landscape Estimating</td>
<td>3</td>
</tr>
<tr>
<td>ENGL1150</td>
<td>Composition I (or ENGL1000)</td>
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<tr>
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**Total Credits** 16

**Second Year - Second Semester**

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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ACCT1005</td>
<td>Principles of Bookkeeping</td>
<td>2</td>
</tr>
<tr>
<td>LAHT2500</td>
<td>Landscape Business Management</td>
<td>4</td>
</tr>
<tr>
<td>LAHT2970</td>
<td>Supervised Occupational Experience III</td>
<td>1</td>
</tr>
<tr>
<td>LAHT2970</td>
<td>Supervised Occupational Experience IV</td>
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</tr>
<tr>
<td>SPEE1020</td>
<td>Interpersonal Communication</td>
<td>3</td>
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<tr>
<td></td>
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</tr>
</tbody>
</table>

**Total Credits** 15

**TOTAL PROGRAM REQUIREMENTS** 64

This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.

* Technical electives may be selected from the following subject area: LAHT.
APPLIED VISUAL ARTS

Delivery: Daytime Classes
Start: Fall or Spring Semester, Full- or Part-Time
Location: Rosemount Campus

Applied Visual Arts A.A.S. Degree .......................... 72 cr.
Applied Visual Arts Diploma ............................... 64 cr.

Major Description
Students work with various art mediums and methods such as drawing, painting, collage, and computer graphics to produce artwork for both commercial and fine art applications. Coursework includes a foundation in design principles, creative problem solving, illustration, layout, color and typography.

Work Environment
Visual artists often work in art or design studios both private and commercial. Job opportunities exist in the publishing, advertising, marketing and visual merchandising industries. Employment could be permanent or seasonal at business locations. Freelance artists in their own studios often work on a contract basis.

Potential Job Titles
• Illustrator
• Visual Artist
• Historical Artist
• Mural Painter
• Production Illustrator
• Exhibit Artist

Salary Data
• Average Wage: $21.54/hour
• Top Earners: $33.26/hour

APPLIED VISUAL ARTS – A.A.S. DEGREE

First Year - First Semester
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>VCOM1001</td>
<td>Introduction to Visual Communications</td>
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<tr>
<td>VCOM1015</td>
<td>Layout I</td>
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<td>Introduction to Photography</td>
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Second Year - Second Semester
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<td>Portfolio for Applied Visual Arts</td>
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TOTAL PROGRAM REQUIREMENTS 72

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* Technical electives may be selected from the following subject area: VCOM.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
### APPLIED VISUAL ARTS - DIPLOMA

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**Total Credits: 15**

#### First Year - Second Semester

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<td>Introduction to Illustrator</td>
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<td>Introduction to Computers</td>
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**Total Credits: 17**

#### Second Year - First Semester

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**Total Credits: 17**

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**Total Credits: 15**

**TOTAL PROGRAM REQUIREMENTS: 64**

_This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans._

*Technical electives may be selected from the following subject area: VCOM.*
ELECTRONIC PUBLISHING

Delivery: Daytime or Evening Classes
Start: Fall or Spring Semester, Full- or Part-Time
Location: Rosemount Campus

Major Description
This program trains students to use different computer software programs to format and combine text, data, photographs, charts, and other graphic art to produce books, brochures, calendars, magazines, newsletters, newspapers, product packaging, business forms and other printed pieces. Program graduates will become knowledgeable about input devices such as scanners and output devices such as in-house and commercial printers. Graduates will understand production workflow and will have learned to work under tight deadlines.

Work Environment
Electronic publishers generally work in pleasant, climate-controlled office settings. They are subject to tight deadlines and spend long hours seated in front of computer monitors.

Potential Job Titles
- Electronic Publishing Specialist
- Production Designer
- Electronic Prepress Technician
- Preflight Technician/Troubleshooter
- Customer Service Representative

Salary Data
- Average Wage: $22.73/hour
- Top Earners: $31.21/hour

ELECTRONIC PUBLISHING – A.A.S. DEGREE

First Year - First Semester
VCOM1001 Introduction to Visual Communications 2
VCOM1006 Color Theory and Applications 2
VCOM1015 Layout I 2
VCOM1021 Introduction to Photography 3
VCOM1030 Visual Design Fundamentals 3
VCOM1060 Creative Problem Solving 3
VCOM1415 Typography Fundamentals 2
VCOM1422 Print Processes I 2

Total Credits 19

First Year - Second Semester
VCOM1010 Introduction to Photoshop 2
VCOM1430 Intro to InDesign 2
VCOM1410 Introduction to Illustrator 2
VCOM1435 Proofreading Fundamentals 1
General Education Elective** 3
Technical Elective* 8

Total Credits 18

Second Year - First Semester
VCOM2415 Advanced Electronic Publishing 3
VCOM2422 Print Processes II 3
Technical Elective* 8
General Education Elective (MnTC Goal 3 or 4)** 4

Total Credits 18

Second Year - Second Semester
VCOM2970 VisCom Internship 4
SPEE1020 Interpersonal Communication 3
ENGL1150 Composition I (or ENGL1000) 3
General Education Elective** 7

Total Credits 17

TOTAL PROGRAM REQUIREMENTS 72

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* Technical electives may be selected from the following subject area: VCOM.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
**ELECTRONIC PUBLISHING – DIPLOMA**

**First Year - First Semester**

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<td>VCOM1415</td>
<td>Typography Fundamentals</td>
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Total Credits 17

**First Year - Second Semester**

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<th>Course Code</th>
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<td>VCOM1010</td>
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<tr>
<td>VCOM1430</td>
<td>Introduction to InDesign</td>
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<tr>
<td>VCOM1410</td>
<td>Introduction to Illustrator</td>
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<td>VCOM1422</td>
<td>Print Processes I</td>
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<tr>
<td>VCOM1435</td>
<td>Proofreading Fundamentals</td>
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Total Credits 16

**Second Year - First Semester**

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Total Credits 18

**Second Year - Second Semester**

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Total Credits 13

**TOTAL PROGRAM REQUIREMENTS 64**

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* Technical electives may be selected from the following subject area: VCOM

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
**GRAPHIC DESIGN TECHNOLOGY**

**Delivery:** Daytime or Evening Classes  
**Start:** Fall or Spring Semester, Full- or Part-Time  
**Location:** Rosemount Campus

**Major Description**  
This program prepares students to explore, plan, design and produce visual solutions to communications problems. Graphic designers work to discover the most effective way to communicate in print, on the Web, and through multimedia and interactive media projects. Students develop skills and knowledge in design concepts, layout and computer software to create multipurpose visual communications materials.

**Work Environment**  
Performing much of their work on a computer, graphic designers work closely with internal and external clients on advertising, marketing and promotional projects for a myriad of organizations and businesses.

**Potential Job Titles**  
- Advertising Designer  
- Graphic Art Designer  
- Graphic Artist  
- Visual Designer  
- Graphic Design Specialist  
- Studio Designer

**Salary Data**  
- Average Wage: $24.19/hour  
- Top Earners: $38.67/hour

**GRAPHIC DESIGN TECHNOLOGY – A.A.S. DEGREE**

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Total Credits 18

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<tr>
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<td>VCOM1400 Intro to QuarkXPress or VCOM1430</td>
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Total Credits 18

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<td>VCOM2420 Advanced Computer Illustration</td>
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Total Credits 17

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Total Credits 19

TOTAL PROGRAM REQUIREMENTS 72

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## GRAPHIC DESIGN TECHNOLOGY – DIPLOMA

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<td>VCOM2680</td>
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**TOTAL PROGRAM REQUIREMENTS 64**

This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.

* Technical electives may be selected from the following subject area: VCOM
## MULTIMEDIA & WEB DESIGN

**Delivery:** Daytime or Evening Classes  
**Start:** Fall or Spring Semester, Full- or Part-Time  
**Location:** Rosemount Campus

### Multimedia & Web Page Design A.A.S. Degree

72 cr.

### Major Description

This program prepares students to create Web sites and pages, images, graphics, and other communications materials for the World Wide Web. Using industry-standard software, students learn how to construct and upload pages for Web sites. They study Internet theory, design elements, Web animation, project management and audio-video for multimedia.

### Work Environment

Like graphic designers and desktop publishers, Web designers usually work in comfortable office environments. They frequently adhere to strict deadlines and spend considerable time seated before computer monitors.

### Potential Job Titles

- Web Designer
- Web Developer
- Multimedia Specialist
- Multimedia Designer
- Multimedia Developer
- Web Specialist

### Salary Data (payscale.com)

**Web Designer**  
Salary Range: $32,231-$46,526/year

### Multimedia & Web Design - A.A.S. Degree

<table>
<thead>
<tr>
<th>First Year - First Semester</th>
</tr>
</thead>
</table>
| VCOM1001 | Introduction to Visual Communications | 2  
| VCOM1006 | Color Theory and Applications | 2  
| VCOM1015 | Layout I | 2  
| VCOM1021 | Introduction to Photography | 3  
| VCOM1030 | Visual Design Fundamentals | 3  
| VCOM1032 | Interactive Design Fundamentals | 2  
| VCOM1051 | Scale and Perspective | 2  
| VCOM1415 | Typography Fundamentals | 2  
| **Total Credits** | 18 |

<table>
<thead>
<tr>
<th>First Year - Second Semester</th>
</tr>
</thead>
</table>
| VCOM1010 | Introduction to Photoshop | 2  
| VCOM1060 | Creative Problem Solving | 3  
| VCOM1400 | Intro to QuarkXPress or VCOM1430 | 2  
| VCOM1410 | Introduction to Illustrator | 2  
| VCOM2680 | Introduction to Flash | 2  
| VCOM1400 | Introduction to Computers | 3  
| General Education Elective** | 4  
| **Total Credits** | 18 |

<table>
<thead>
<tr>
<th>Second Year - First Semester</th>
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</table>
| VCOM2660 | 3D Modeling and Animation | 3  
| VCOM2685 | Web Page Construction I | 2  
| VCOM2694 | Advanced Multimedia Production | 2  
| VCOM2700 | Advanced Flash Animation | 3  
| SPEE1020 | Interpersonal Communication | 3  
| ENGL1150 | Composition | 3  
| Technical Elective* | 2  
| **Total Credits** | 18 |

<table>
<thead>
<tr>
<th>Second Year - Second Semester</th>
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</table>
| VCOM2605 | Audio/Video for Multimedia | 3  
| VCOM2650 | Multimedia Project Management | 2  
| VCOM2690 | Web Page Construction II | 3  
| VCOM2722 | Portfolio for Multimedia and Web Page Design | 2  
| VCOM2730 | Career Research Skills | 1  
| General Education Elective** | 7  
| **Total Credits** | 18 |

**TOTAL PROGRAM REQUIREMENTS**

72 cr.

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

* Technical electives may be selected from the following subject area: VCOM.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
PHOTOGRAPHIC IMAGING TECHNOLOGY

Delivery: Daytime Classes
Start: Fall or Spring Semester, Full- or Part-Time
Location: Rosemount Campus

Major Description
Students in this program use their creative abilities to plan and capture unique photographs and then process, manage, and digitally enhance the images to produce professional quality prints. The program teaches skills in photography, digital workflow and color management of images, advanced PhotoShop and large format printing techniques for the well-rounded photographer and photo technician. Using a wide variety of studio, darkroom, and digital equipment, students practice the hands-on skills that they will face during their careers in the photo industry.

Work Environment
Graduates become photographers of all types as well as traditional and digital photo lab specialists. Opportunities in new technologies and niche areas continue to grow as clients expect a more sophisticated variety of products and services. Advanced computer and software skills along with solid equipment operation provide the graduate with the foundation needed to advance and grow with the industry.

Potential Job Titles
- Freelance Photographer
- Studio Photographer
- Digital Production Specialist
- Digital Printing Specialist
- Quality Control Technician
- Digital Asset Management Technician
- Commercial Photographer/Assistant

Salary Data
- Average Wage: $19.19/hour
- Top Earners: $25.66/hour

PHOTOGRAPHIC IMAGING TECHNOLOGY – A.A.S. DEGREE

First Year - First Semester
VCOM1001 Introduction to Visual Communications 2
VCOM1021 Introduction to Photography 3
VCOM1515 Photo Lighting Techniques 2
VCOM1525 Basic Darkroom Techniques 4
Technical Elective* 2
COML1400 Introduction to Computers 3
Total Credits 16

First Year - Second Semester
VCOM1300 Intro to Adobe Lightroom 2
VCOM1010 Introduction to Photoshop 2
VCOM1565 Color Printing Systems 4
VCOM1570 Portrait Photography 2
VCOM1580 Introduction to Digital Imaging 2
SPEE1020 Interpersonal Communication 3
Total Credits 15

Second Year - First Semester
VCOM1430 Introduction to InDesign 2
VCOM2510 Commercial Photography 2
VCOM2520 Digital Photography 2
VCOM2551 Digital Studio Workflow I 2
Technical Elective* 1
ENGL1150 Composition I 3
General Education Elective (MnTC Goal 3 or 4)** 4
Total Credits 16

Second Year - Second Semester
VCOM2552 Digital Studio Workflow II 2
VCOM2581 Photography Portfolio 2
VCOM2605 Audio/Video for Presentation 3
Technical Elective* 3
General Education Elective** 7
Total Credits 17

TOTAL PROGRAM REQUIREMENTS 64

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

* Technical electives may be selected from the following subject area: VCOM.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
## PHOTOGRAPHIC IMAGING TECHNOLOGY - DIPLOMA

### First Year - First Semester
- **VCOM1001** Introduction to Visual Communications
- **VCOM1021** Introduction to Photography
- **VCOM1515** Photo Lighting Techniques
- **VCOM1580** Introduction to Digital Imaging
- **Technical Elective**
- **General Education**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>VCOM1001</td>
<td>Introduction to Visual Communications</td>
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<td>VCOM1021</td>
<td>Introduction to Photography</td>
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</tr>
<tr>
<td>VCOM1515</td>
<td>Photo Lighting Techniques</td>
<td>2</td>
</tr>
<tr>
<td>VCOM1580</td>
<td>Introduction to Digital Imaging</td>
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<tr>
<td><strong>Total Credits</strong></td>
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</tbody>
</table>

### First Year - Second Semester
- **VCOM1010** Introduction to Photoshop
- **VCOM1525** Basic Darkroom Techniques
- **VCOM1565** Color Printing Systems
- **VCOM1570** Portrait Photographer
- **VCOM1580** Introduction to Digital Imaging
- **VCOM2581** Photography Portfolio
- **VCOM2730** Career Research Skills

<table>
<thead>
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<th>Course Name</th>
<th>Credits</th>
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<td>VCOM1010</td>
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<td>VCOM1525</td>
<td>Basic Darkroom Techniques</td>
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<tr>
<td>VCOM1565</td>
<td>Color Printing Systems</td>
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<tr>
<td>VCOM1570</td>
<td>Portrait Photographer</td>
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<tr>
<td>VCOM1580</td>
<td>Introduction to Digital Imaging</td>
<td>2</td>
</tr>
<tr>
<td>VCOM2581</td>
<td>Photography Portfolio</td>
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<tr>
<td>VCOM2730</td>
<td>Career Research Skills</td>
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**TOTAL PROGRAM REQUIREMENTS** 32

*This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.*

* Technical Elective may be selected from course subject area VCOM.

** General Education – Select from SPEE1020, COML1400 or ENGL1150.

## DIGITAL IMAGING TECHNICIAN - CERTIFICATE

### First Year - First Semester
- **VCOM1001** Introduction to Visual Communications
- **VCOM1021** Introduction to Photography
- **VCOM1010** Introduction to Photoshop
- **VCOM1430** Introduction to InDesign
- **VCOM1410** Introduction to Illustrator
- **Technical Elective**

<table>
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<td>VCOM1010</td>
<td>Introduction to Photoshop</td>
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<td>VCOM1430</td>
<td>Introduction to InDesign</td>
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<td>VCOM1410</td>
<td>Introduction to Illustrator</td>
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<tr>
<td>VCOM1580</td>
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<td>2</td>
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<td><strong>Total Credits</strong></td>
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### First Year - Second Semester
- **VCOM2520** Digital Photography
- **VCOM2551** Digital Studio Workflow I
- **VCOM2605** Audio/Visual for Presentations
- **VCOM2730** Career Research Skills
- **VCOM2500** Photography Portfolio

<table>
<thead>
<tr>
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<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
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<tr>
<td>VCOM2551</td>
<td>Digital Studio Workflow I</td>
<td>2</td>
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<tr>
<td>VCOM2605</td>
<td>Audio/Visual for Presentations</td>
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<tr>
<td>VCOM2730</td>
<td>Career Research Skills</td>
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<tr>
<td>VCOM2500</td>
<td>Photography Portfolio</td>
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**TOTAL PROGRAM REQUIREMENTS** 24

## PHOTOGRAPHER ASSISTANT - CERTIFICATE

### First Year - First Semester
- **VCOM1021** Introduction to Photography
- **VCOM1360** Photography Workshop
- **VCOM1515** Photo Lighting Techniques
- **VCOM1010** Introduction to Photoshop
- **VCOM1570** Portrait Photography

<table>
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<td>VCOM1360</td>
<td>Photography Workshop</td>
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<tr>
<td>VCOM1515</td>
<td>Photo Lighting Techniques</td>
<td>2</td>
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<tr>
<td>VCOM1010</td>
<td>Introduction to Photoshop</td>
<td>2</td>
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<tr>
<td>VCOM1570</td>
<td>Portrait Photography</td>
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<tr>
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</table>

### First Year - Second Semester
- **VCOM2510** Commercial Photography
- **VCOM2520** Digital Photography
- **VCOM2540** The Business of Photography
- **VCOM2580** Photography Portfolio
- **VCOM2730** Career Research Skills

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>VCOM2510</td>
<td>Commercial Photography</td>
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<td>VCOM2520</td>
<td>Digital Photography</td>
<td>2</td>
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<tr>
<td>VCOM2540</td>
<td>The Business of Photography</td>
<td>2</td>
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<tr>
<td>VCOM2580</td>
<td>Photography Portfolio</td>
<td>2</td>
</tr>
<tr>
<td>VCOM2730</td>
<td>Career Research Skills</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

**TOTAL PROGRAM REQUIREMENTS** 19

*This is a sample course sequence resulting in a certificate. Please consult your program advisor regarding your academic plans.*

* Technical Elective may be selected from course subject area VCOM.
PHOTOGRAPHY

Delivery: Daytime or Evening Classes
Start: Fall or Spring Semester, Full- or Part-Time
Location: Rosemount Campus

Major Description
Meshing the art, science and business of photography in a dynamic curriculum, this program allows students to achieve one or more of the following goals:

1. Starting a photography business
2. Entering a specific sector of the visual communications workplace
3. Acceptance to a four-year college

Work Environment
Professional photographers, self-employed or employed by large organizations, succeed in a multitude of niches. Harnessing creativity to strong technical skills, photographers typically take on some form of scientific, commercial or artistic specialization.

Potential Job Titles
• Advertising Photographer
• Forensic Photographer
• Photojournalist
• Portrait Photographer
• Sports Photographer
• Wedding Photographer
• Wildlife Photographer

Salary Data
• Average Wage: $27.94/hour
• Top Earners: $41.08/hour

PHOTOGRAPHY – A.S. DEGREE

This degree is designed for students wishing to transfer to a four-year institution to obtain an advanced degree.

First Year - First Semester
ARTS1000 Visual Communication 3
ARTS1200 The Creative Process 3
COML1400 Introduction to Computers 3
VCOM1010 Introduction to Photoshop 2
VCOM1515 Photo Lighting Techniques 2
Technical Elective* 1
General Education Elective** 4
Total Credits 18

First Year - Second Semester
ARTS1100 History of Photography 3
SPEE1020 Interpersonal Communication 3
VCOM1021 Introduction to Photography 3
VCOM1570 Portrait Photography 2
VCOM1580 Introduction to Digital Imaging 2
Technical Elective* 2
Total Credits 15

Second Year - First Semester
ENGL1150 Composition I 3
VCOM1025 Law and Ethics for VisCom 1
VCOM2510 Commercial Photography 2
VCOM2520 Digital Photography 2
VCOM2551 Digital Studio Workflow I 2
Technical Elective* 2
General Education Elective (MnTC Goal 4)** 4
Total Credits 16

Second Year - Second Semester
VCOM1730 Advanced Lighting Techniques 2
VCOM2552 Digital Studio Workflow II 2
VCOM2580 Photography Portfolio 2
Technical Elective* 5
General Education Elective (MnTC Goal 3)** 4
Total Credits 15

TOTAL PROGRAM REQUIREMENTS 64

This is a sample course sequence resulting in an A.S. degree. Please consult your program advisor regarding your academic plans.

* Technical electives may be selected from the following subject areas: ENTR and VCOM.

** See General Education A.S. degree requirements on page 113.
WOOD FINISHING TECHNOLOGY

Delivery: Daytime Classes
Start: Fall Semester, Full-Time
Location: Rosemount Campus

Major Description
A perfect blend of art and science, the world of the wood finisher combines the knowledge and skills of the past and present to preserve wood creations for the future. Students specialize in a wide range of areas. They can beautify and enhance the appearance of today’s wood objects. They can honor proven craftsmanship by repairing and restoring wood artifacts from the past.

Work Environment
Skilled furniture restorers will work for or start their own furniture restoration shops. Commercial finishing technicians will find employment with any furniture or architectural mill work manufacturer. They specialize in color matching and creating custom colors with today’s new finishes. A Furniture Service Technician repairs new furniture at furniture stores or is self employed repairing damaged wood in any form at the onsite location.

Potential Job Titles
- Furniture Restorer
- Furniture Finisher
- Commercial Finishing Technician
- Furniture Service Technician
- Furniture Restoration Specialist
- Wood Finisher

Salary Data
- Average Wage: $18.13/hour
- Top Earners: $24.29/hour

WOOD FINISHING TECHNOLOGY – DIPLOMA

First Year - First Semester
WOOD1004 Woodworking 3
WOOD1007 Methods of Fastening 3
WOOD1012 Color Theory 3
WOOD1015 Spot Repair I 3
WOOD1019 Spot Repair II 5
Total Credits 17

First Year - Second Semester
WOOD1010 Wood and Finishing Technology 5
WOOD1021 Wood Refinishing 6
WOOD1026 Advanced Finishing Techniques 5
WOOD1032 Antique Furniture Conservation 3
Total Credits 19

TOTAL PROGRAM REQUIREMENTS 36

This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.

FURNITURE SERVICE TECHNICIAN I – CERTIFICATE
Pending MnSCU Board Approval

First Year - First Semester
WOOD1012 Color Theory 3
WOOD1015 Spot Repair I 3
WOOD1019 Spot Repair II 5
Total Credits 11

TOTAL PROGRAM REQUIREMENTS 11

FURNITURE SERVICE TECHNICIAN II – CERTIFICATE
Pending MnSCU Board Approval

First Year - First Semester
WOOD1010 Wood and Finishing Technology 5
WOOD1012 Color Theory 3
WOOD1015 Spot Repair I 3
WOOD1019 Spot Repair II 5
WOOD1032 Antique Furniture Conservation 3
Total Credits 19

TOTAL PROGRAM REQUIREMENTS 19
Programs of Study

Child Development  69
Dental Assistant    72
Exercise & Sport Science  74
Medical Assistant    78
Nursing Assistant    80
Practical Nursing    81

Service for Life

Our programs in Health and Human Services give students opportunities to pursue careers in fields that are essential to the care and welfare of the human condition.

DCTC also provides courses leading to MN State Certification for Emergency Medical Technicians (EMT) and First Responders. See www.dctc.edu.

From nursing to child development, professionals in health and human services bring their knowledge and expertise directly to the people they serve. They are both a lifeline and a boon to human beings of every age in all walks of life.

Traits of the Trade

People attracted to careers in health and human services are generally:

• Mature
• Friendly
• Patient
• Warm-hearted
• Supportive
• Dependable
• Serious about their responsibilities
• Practical
• Empathetic
• Compassionate
• Nurturing
• Conscientious

Unless otherwise specified, salary data is sourced from iseek.org.
Wherever the art of medicine is loved, there is also a love of humanity.”

— Hippocrates —
**CHILD DEVELOPMENT**

**Major Description**
This program prepares students for employment in a variety of early childhood settings. Courses meet Minnesota Department of Human Services educational requirements for assistant teachers and teachers in a child care setting. Students learn about child development, guidance, professional relationships, nutrition, health and safety, cultural sensitivity and techniques for promoting learning in young children.

**Work Environment**
Child Development professionals work with infants, toddlers, preschoolers, school-aged children and special-needs children in homes, schools and community centers. Other career options include child advocacy and social service.

**Potential Job Titles**
- Child Life Assistant
- Preschool Teacher
- Day Care Worker
- Family Day Care Provider
- Child Care Development Specialist
- Nanny/Household Manager
- School District Paraprofessional

**Salary Data**
**Child Care**
- Average Wage: $10.61/hour
- Top Earners: $13.92/hour

**Preschool Teacher**
- Average Wage: $14.96/hour
- Top Earners: $20.73/hour

---

**CHILD DEVELOPMENT – A.S. DEGREE**

This degree is designed for students wishing to transfer to a four-year institution to obtain an advanced degree.

**First Year - First Semester**
- CDEV1200  Prof. Relations in Early Childhood Careers  3
- CDEV1210  Foundations of Child Development I  3
- CDEV1220  Child Safety, Health, and Nutrition  4
- CDEV1230  Guidance and Early Childhood Environment  4
- Technical Elective*  3

**Total Credits 17**

**First Year - Second Semester**
- CDEV1320  Foundations of Child Development II  4
- CDEV1340  Planning and Implementing Curriculum  3
- CDEV2320  Profiles of the Exceptional Child  3
- COML1400  Introduction to Computers  3
- SPEE1020  Interpersonal Communication  3

**Total Credits 16**

**First Year - Summer Session**
- CDEV1510  Internship  3

**Total Credits 3**

**Second Year - First Semester**
- ENGL1150  Composition I  3
- General Education Elective (MnTC Goal 4)**  4
- General Education Elective (MnTC Goal 3)**  4
- General Education Elective**  4

**Total Credits 15**

**Second Year - Second Semester**
- CDEV2600  Professional Leadership  3
- General Education Elective**  9

**Total Credits 12**

**TOTAL PROGRAM REQUIREMENTS 63**

* Technical electives may be selected from the following subject area: CDEV.

**See General Education A.S. degree requirements on page 113.**

---

This is a sample course sequence resulting in an A.S. degree. Please consult your program advisor regarding your academic plans.
### CHILD DEVELOPMENT – A.A.S. DEGREE

#### First Year - First Semester
- CDEV1200 Prof. Relations in Early Childhood Careers 3
- CDEV1210 Foundations of Child Development I 3
- CDEV1220 Child Safety, Health, and Nutrition 4
- CDEV1230 Guidance and Early Childhood Environment 4
- Technical Elective* 2

Total Credits 16

#### First Year - Second Semester
- CDEV1320 Foundations of Child Development II 4
- CDEV1340 Planning and Implementing Curriculum 3
- CDEV2320 Profiles of the Exceptional Child 3
- Technical Elective* 4
- SPEE1020 Interpersonal Communication 3

Total Credits 17

#### First Year - Summer Session
- CDEV1510 Internship 3

Total Credits 3

#### Second Year - First Semester
- CDEV2330 Advanced Child Guidance 3
- CDEV2640 Program Planning 3
- COML1400 Introduction to Computers 3
- ENGL1150 Composition I 3
- General Education Elective (MnTC Goal 3 or 4)** 3

Total Credits 15

#### Second Year - Second Semester
- CDEV2600 Professional Leadership 3
- CDEV2840 Practicum 3
- General Education Elective** 8

Total Credits 14

** TOTAL PROGRAM REQUIREMENTS 65

* Technical electives may be selected from the following subject area: CDEV.
** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.

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### CHILD DEVELOPMENT – DIPLOMA

#### First Year - First Semester
- CDEV1200 Prof. Relations in Early Childhood Careers 3
- CDEV1210 Foundations of Child Development I 3
- CDEV1220 Child Safety, Health, and Nutrition 4
- CDEV1230 Guidance and Early Childhood Environment 4
- ENGL1150 Composition I 3

Total Credits 17

#### First Year - Second Semester
- CDEV1320 Foundations of Child Development II 4
- CDEV1340 Planning and Implementing Curriculum 3
- CDEV1510 Internship 3
- COML1400 Introduction to Computers 3
- SPEE1020 Interpersonal Communication 3

Total Credits 16

** TOTAL PROGRAM REQUIREMENTS 33

This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.

---

### CHILD DEVELOPMENT – CERTIFICATE

#### First Year - First Semester
- CDEV1200 Prof. Relations in Early Childhood Careers 3
- CDEV1210 Foundations of Child Development I 3
- CDEV1220 Child Safety, Health, and Nutrition 4
- CDEV1230 Guidance and Early Childhood Environment 4
- ENGL1150 Composition I 3

Total Credits 17

** TOTAL PROGRAM REQUIREMENTS 17

This is a sample course sequence resulting in a certificate. Please consult your program advisor regarding your academic plans.
### CHILD LIFE ASSISTANT – A.A.S. DEGREE

<table>
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<tbody>
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<td>CDEV1200 Prof. Relations in Early Childhood Careers</td>
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<tr>
<td>CDEV1210 Foundations of Child Development I</td>
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</tr>
<tr>
<td>CDEV1220 Child Safety, Health, and Nutrition</td>
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<tr>
<td>CDEV1230 Guidance and Early Childhood Environment</td>
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<td>HEAL1502 Medical Terminology</td>
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<tr>
<td>COML1400 Introduction to Computers</td>
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<td>PSYC1300 Child/Adolescent Psychology</td>
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<tr>
<th>First Year - Summer Session</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CDEV1510 Internship</td>
<td>3</td>
</tr>
<tr>
<td>CDEV2715 Sign language in Early Childhood</td>
<td>1</td>
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<tr>
<td><strong>Total Credits</strong></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Year - First Semester</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL1150 Composition I</td>
<td>3</td>
</tr>
<tr>
<td>BIOL1310 Introduction to Anatomy and Physiology</td>
<td>4</td>
</tr>
<tr>
<td>SOCY1010 Marriage &amp; the Family</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 1450 Death &amp; Dying</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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<table>
<thead>
<tr>
<th>Spring Semester – Second Year</th>
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<tbody>
<tr>
<td>CDEV2600 Professional Leadership</td>
<td>3</td>
</tr>
<tr>
<td>CDEV2713 Culture, Family, and Providers</td>
<td>1</td>
</tr>
<tr>
<td>MATS (over 1000, except 1205)</td>
<td>4</td>
</tr>
<tr>
<td>PHIL1350 Medical Ethics</td>
<td>3</td>
</tr>
<tr>
<td>Technical Elective</td>
<td>2</td>
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<td><strong>Total Credits</strong></td>
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</tbody>
</table>

**TOTAL PROGRAM REQUIREMENTS 60**

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

* Technical electives may be selected from the following subject area: CDEV.

### NATIONAL CHILD DEVELOPMENT ASSOCIATE – CERTIFICATE

<table>
<thead>
<tr>
<th>First Year - First Semester</th>
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<tbody>
<tr>
<td>CDEV1205 Professional Resources</td>
<td>1</td>
</tr>
<tr>
<td>CDEV1206 Parent and Professional Relations</td>
<td>2</td>
</tr>
<tr>
<td>CDEV1210 Foundations of Child Development</td>
<td>3</td>
</tr>
<tr>
<td>CDEV1230 Guidance and Early Childhood Environment</td>
<td>4</td>
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<tr>
<td><strong>Total Credits</strong></td>
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</tr>
</tbody>
</table>

**TOTAL PROGRAM CREDITS 10**

This is a sample course sequence resulting in a certificate. Please consult your program advisor regarding your academic plans.
DENTAL ASSISTANT

Major Description
This program prepares students for employment in dentistry as a Certified Dental Assistant and a Licensed Dental Assistant. Students are trained to expose and process dental x-ray films, master a variety of chairside skills and expanded functions delegated by the Minnesota State Board of Dentistry. Students also study ways to control and prevent dental disease.

Work Environment
Dental Assistants provide direct and indirect patient care working under the supervision of a dentist. Potential work settings include dental practices in both general and specialty offices. Work areas are near the patient in the dental chair to permit efficient assistance to the dentist.

Potential Job Titles
• Certified Dental Assistant (CDA)
• Licensed Dental Assistant (LDA)
• Expanded Duty Dental Assistant
• Restorative Dental Assistant

Salary Data
• Average Wage: $20.94/hour
• Top Earners: $25.70/hour

DENTAL ASSISTANT – A.A.S. DEGREE

First Year - First Semester
DENT1100 Dental Science 4
DENT1110 Pre-Clinical Dental Assisting 3
DENT1120 Dental Health 2
DENT1130 Chairside Assisting I 3
DENT1140 Dental Materials 3
SPEE1020 Interpersonal Communication 3
Total Credits 18

First Year - Second Semester
DENT1250 Radiology 5
DENT1260 Expanded Functions 5
DENT1270 Chairside Assisting II 3
DENT1280 Dental Practice Management 2
COML1400 Introduction to Computers 3
Total Credits 18

First Year - Summer Session
DENT2970 Externship 8
General Education Elective** 4
Total Credits 12

Second Year - First Semester
ENGL1150 Composition I 3
General Education Elective (MnTC Goal 3 or 4)** 4
General Education Elective** 9
Total Credits 16

TOTAL PROGRAM REQUIREMENTS 64

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
**DENTAL ASSISTANT – DIPLOMA**

**First Year - First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>COML1400</td>
<td>Introduction to Computers</td>
<td>3</td>
</tr>
<tr>
<td>DENT1100</td>
<td>Dental Science</td>
<td>4</td>
</tr>
<tr>
<td>DENT1110</td>
<td>Pre-Clinical Dental Assisting</td>
<td>3</td>
</tr>
<tr>
<td>DENT1120</td>
<td>Dental Health</td>
<td>2</td>
</tr>
<tr>
<td>DENT1130</td>
<td>Chairside Assisting I</td>
<td>3</td>
</tr>
<tr>
<td>DENT1140</td>
<td>Dental Materials</td>
<td>3</td>
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</table>

**Total Credits** 18

**First Year - Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>DENT1250</td>
<td>Radiology</td>
<td>5</td>
</tr>
<tr>
<td>DENT1260</td>
<td>Expanded Functions</td>
<td>5</td>
</tr>
<tr>
<td>DENT1270</td>
<td>Chairside Assisting II</td>
<td>3</td>
</tr>
<tr>
<td>DENT1280</td>
<td>Dental Practice Management</td>
<td>2</td>
</tr>
<tr>
<td>SPEE1020</td>
<td>Interpersonal Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits** 18

**First Year - Summer Session**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>DENT2970</td>
<td>Externship</td>
<td>8</td>
</tr>
</tbody>
</table>

**Total Credits** 8

**TOTAL PROGRAM REQUIREMENTS** 44

*This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.*
EXERCISE & SPORT SCIENCE

Major Description
This program offers training and development directly related to positions in a variety of health, fitness and sports occupations. Core coursework covers exercise and sport science. Supporting courses involve academic areas such as health science and physiology. The curriculum provides ongoing practical education and experiences in conjunction with a final semester internship for the A.A.S. degree.

Work Environment
Exercise and Sport Science graduates become valuable employees in fitness centers, YMCA/YWCA facilities, corporate fitness centers, collegiate and hospital-based wellness centers, cruise lines and cardiac rehab centers.

Potential Job Titles
- Coach
- Fitness Specialist
- Personal Trainer
- Group Fitness Instructor

Salary Data
Fitness Trainer
- Average Wage: $14.01/hour
- Top Earners: $20.30/hour

EXERCISE & SPORT SCIENCE – A.S. DEGREE
Pending MnSCU Board Approval

This degree is designed for students wishing to transfer to a four-year institution to obtain an advanced degree.

First Year - First Semester
EXER1000 Introduction to Human Performance Studies 3
EXER1020 Strength Training 2
EXER1065 Psychology of Sport and Performance 3
BIOL1500 General Biology 4
SPEE1020 Interpersonal Communication 3
Total Credits 15

First Year - Second Semester
EXER1015 Personal Health and Wellness 3
EXER1025 Physical Conditioning 2
Technical Elective* 3
ENGL1150 Composition I 3
PSYC1100 General Psychology 3
General Education Elective** 3
Total Credits 17

Second Year - First Semester
BIOL2000 Anatomy and Physiology I 4
Technical Elective* 5
COSO1000 Computer and Society Basics 1
SOCY1110 Intro to Sociology or (SOCY1010) 3
Total Credits 13

Second Year - Second Semester
EXER2295 Social and Ethical Aspects of Sport 3
BIOL2010 Anatomy and Physiology II 4
Technical Elective* 4
General Education Elective (MnTC Goal 3 or 4)** 4
Total Credits 15

TOTAL PROGRAM REQUIREMENTS 60

This is a sample course sequence resulting in an A.S. degree. Please consult your program advisor regarding your academic plans.

* Technical electives may be selected from the following subject area: EXER.

** See General Education A.S. degree requirements on page 113.
### EXERCISE & SPORT SCIENCE – A.A.S. DEGREE

**Pending MnSCU Board Approval**

#### First Year - First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL1500</td>
<td>General Biology</td>
<td>4</td>
</tr>
<tr>
<td>EXER1000</td>
<td>Introduction to Human Performance Studies</td>
<td>3</td>
</tr>
<tr>
<td>EXER1020</td>
<td>Strength Training</td>
<td>2</td>
</tr>
<tr>
<td>EXER1065</td>
<td>Psychology of Sport and Performance</td>
<td>3</td>
</tr>
<tr>
<td>SPEE1020</td>
<td>Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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</table>

#### First Year - Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL1150</td>
<td>Composition I</td>
<td>3</td>
</tr>
<tr>
<td>EXER1015</td>
<td>Personal Health and Wellness</td>
<td>3</td>
</tr>
<tr>
<td>EXER1025</td>
<td>Physical Conditioning</td>
<td>2</td>
</tr>
<tr>
<td>EXER1050</td>
<td>Nutrition for Health &amp; Human Performance</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Technical Elective*</td>
<td>3</td>
</tr>
<tr>
<td>PSYC1100</td>
<td>General Psychology</td>
<td>3</td>
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<tr>
<td><strong>Total Credits</strong></td>
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#### Second Year - First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIOL2000</td>
<td>Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>EXER2020</td>
<td>Personal Training and Exercise Leadership I</td>
<td>2</td>
</tr>
<tr>
<td>EXER2090</td>
<td>Exercise for Special Populations</td>
<td>2</td>
</tr>
<tr>
<td>EXER2115</td>
<td>Applied Exercise Physiology</td>
<td>3</td>
</tr>
<tr>
<td>COSO1000</td>
<td>Computer and Society Basics</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>12</strong></td>
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#### Second Year - Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL2010</td>
<td>Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>EXER2060</td>
<td>Personal Training and Exercise Leadership II</td>
<td>2</td>
</tr>
<tr>
<td>EXER2295</td>
<td>Social and Ethical Aspects of Sport</td>
<td>3</td>
</tr>
<tr>
<td>EXER2975</td>
<td>Practicum</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Technical Elective*</td>
<td>3</td>
</tr>
<tr>
<td>INTS1010</td>
<td>Job Seeking Skills</td>
<td>1</td>
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<tr>
<td><strong>Total Credits</strong></td>
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</table>

**TOTAL PROGRAM REQUIREMENTS 60**

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### PERSONAL TRAINING – CERTIFICATE

#### First Year - First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXER1020</td>
<td>Strength Training</td>
<td>2</td>
</tr>
<tr>
<td>EXER1065</td>
<td>Psychology of Sport and Performance</td>
<td>3</td>
</tr>
<tr>
<td>EXER2020</td>
<td>Personal Training and Exercise Leadership I</td>
<td>2</td>
</tr>
<tr>
<td>EXER2975</td>
<td>Practicum</td>
<td>1</td>
</tr>
<tr>
<td>HEAL1000</td>
<td>First Aid/CPR †</td>
<td>1</td>
</tr>
<tr>
<td>HEAL1101†</td>
<td>Anatomy and Physiology</td>
<td>4</td>
</tr>
<tr>
<td>SPEE1020</td>
<td>Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

**TOTAL PROGRAM REQUIREMENTS 16**

---

*This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.*

† Students can substitute HLTW1000 for HEAL1000.
† Students can substitute BIOL2000 and BIOL2010 for HEAL1101.
### GROUP FITNESS – CERTIFICATE

**First Year - First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXER1020</td>
<td>Strength Training</td>
<td>2</td>
</tr>
<tr>
<td>EXER1065</td>
<td>Psychology of Sport and Performance</td>
<td>3</td>
</tr>
<tr>
<td>EXER2020</td>
<td>Personal Training and Exercise Leadership I</td>
<td>2</td>
</tr>
<tr>
<td>EXER2250</td>
<td>Group Fitness Instruction</td>
<td>2</td>
</tr>
<tr>
<td>EXER2975</td>
<td>Practicum</td>
<td>2</td>
</tr>
<tr>
<td>HEAL1000</td>
<td>First Aid/CPR †</td>
<td>1</td>
</tr>
<tr>
<td>HEAL1101†</td>
<td>Anatomy and Physiology</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Credits**: 16

**TOTAL PROGRAM REQUIREMENTS**: 16

*This is a sample course sequence resulting in a certificate. Please consult your program advisor regarding your academic plans.*

† Students can substitute HLTW1000 for HEAL1000.
† Students can substitute BIOL2000 and BIOL2010 for HEAL1101.

### GERIATRIC HEALTH & FITNESS – CERTIFICATE

**First Year - First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EXER1020</td>
<td>Strength Training</td>
<td>2</td>
</tr>
<tr>
<td>EXER2020</td>
<td>Personal Training and Exercise Leadership I</td>
<td>2</td>
</tr>
<tr>
<td>EXER2090</td>
<td>Exercise for Special Populations</td>
<td>2</td>
</tr>
<tr>
<td>EXER2250</td>
<td>Group Fitness Instruction</td>
<td>2</td>
</tr>
<tr>
<td>EXER2280</td>
<td>Health and Aging</td>
<td>3</td>
</tr>
<tr>
<td>HEAL1000</td>
<td>First Aid/CPR †</td>
<td>1</td>
</tr>
<tr>
<td>HEAL1101†</td>
<td>Anatomy and Physiology</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Credits**: 16

**TOTAL PROGRAM REQUIREMENTS**: 16

*This is a sample course sequence resulting in a certificate. Please consult your program advisor regarding your academic plans.*

† Students can substitute HLTW1000 for HEAL1000.
† Students can substitute BIOL2000 and BIOL2010 for HEAL1101.
### ADVANCED PERSONAL TRAINING – CERTIFICATE

Must be ACE certified or have completed the Personal Training Certificate.

**First Year - First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENTR1650</td>
<td>Selling Strategies for the Entrepreneur</td>
<td>3</td>
</tr>
<tr>
<td>EXER1025</td>
<td>Physical Conditioning</td>
<td>2</td>
</tr>
<tr>
<td>EXER1050</td>
<td>Nutrition for Health and Human Performance</td>
<td>3</td>
</tr>
<tr>
<td>EXER2060</td>
<td>Personal Training and Exercise Leadership II</td>
<td>2</td>
</tr>
<tr>
<td>EXER2125</td>
<td>Applied Biomechanics &amp; Movement Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>MKTC1000</td>
<td>Principles of Marketing</td>
<td>3</td>
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</table>

Total Credits 16

**TOTAL PROGRAM REQUIREMENTS** 16

---

### COMMUNITY COACHING – CERTIFICATE

**First Year - First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>EXER1045</td>
<td>Organization and Management of Sports</td>
<td>3</td>
</tr>
<tr>
<td>EXER1200</td>
<td>Team and Individual Games</td>
<td>2</td>
</tr>
<tr>
<td>EXER2060</td>
<td>Personal Training and Exercise Leadership II</td>
<td>2</td>
</tr>
<tr>
<td>EXER2225</td>
<td>Theory of Coaching</td>
<td>2</td>
</tr>
<tr>
<td>EXER2235</td>
<td>Introduction to Athletic Training</td>
<td>3</td>
</tr>
<tr>
<td>EXER2975</td>
<td>Practicum</td>
<td>2</td>
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<tr>
<td>EMRG1017</td>
<td>First Responder</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 17

**TOTAL PROGRAM REQUIREMENTS** 17

---

This is a sample course sequence resulting in a certificate. Please consult your program advisor regarding your academic plans.
MEDICAL ASSISTANT

Major Description
Accredited by the Commission on Accreditation of Allied Health Education Programs, or CAAHEP, on recommendation of the Medical Assisting Education Review Board, this program trains students to be professional medical assistants dedicated to patient care management. Graduates are equipped to assist physicians with examinations and treatments, take medical histories, perform diagnostic tests, expose X-ray films, sterilize instruments and supplies, assist with minor surgery and administer medications.

Work Environment
Graduates assist primary care physicians and specialists in clinics ranging in size from single-doctor to large, multi-specialty. Opportunities are also present in a variety of other health care areas.

Potential Job Titles
• Certified Medical Assistant
• Medical Assistant
• Clinical Assistant

Salary Data
• Average Wage: $16.60/hour
• Top Earners: $20.59/hour

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
### MEDICAL ASSISTANT - DIPLOMA

**First Year - First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>HEAL1101</td>
<td>Anatomy and Physiology</td>
<td>4</td>
</tr>
<tr>
<td>HEAL1502</td>
<td>Medical Terminology</td>
<td>2</td>
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<tr>
<td>MDAS1123</td>
<td>Laboratory Skills I</td>
<td>5</td>
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<tr>
<td>MDAS1130</td>
<td>Clinical Procedures I</td>
<td>3</td>
</tr>
<tr>
<td>MDAS1140</td>
<td>Phlebotomy</td>
<td>1</td>
</tr>
<tr>
<td>OFFC1130</td>
<td>MS Word I</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>17</strong></td>
</tr>
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</table>

**First Year - Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDAS1210</td>
<td>Disease/Medical Treatment &amp; Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>MDAS1222</td>
<td>Laboratory Skills II</td>
<td>4</td>
</tr>
<tr>
<td>MDAS1230</td>
<td>Clinical Procedures II</td>
<td>3</td>
</tr>
<tr>
<td>MDAS1270</td>
<td>Administrative Procedures</td>
<td>3</td>
</tr>
<tr>
<td>MDAS1701</td>
<td>Pharmacology &amp; Math for Medical Assistants</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>17</strong></td>
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**First Year - Summer Session**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MDAS1250</td>
<td>Fundamentals of Radiographic Imaging</td>
<td>2</td>
</tr>
<tr>
<td>MDAS2970</td>
<td>Practicum</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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<td><strong>8</strong></td>
</tr>
</tbody>
</table>

**TOTAL PROGRAM REQUIREMENTS** 42

*This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.*
NURSING ASSISTANT

Delivery: Daytime or Evening Classes
Start: Fall, Spring or Summer Session
Location: Rosemount Campus

Major Description
This course prepares students to assist dependent elderly persons, home-care clients and hospital patients with their personal care needs. This course combines home health aide content with the nursing assistant course. The MN State Certification examination is administered following course completion.

Work Environment
Nursing assistants and nursing assistants/registered, or NA/R, provide care under the direct supervision of licensed nurses. Employment is primarily in long-term care facilities, home health agencies and hospitals.

Potential Job Titles
- Certified Nurse Aide
- Health Care Aide
- Patient Care Technician
- Hospital Aide
- Certified Nursing Assistant
- Nursing Assistant/Registered

Salary Data
- Average Wage: $14.61/hour
- Top Earners: $18.78/hour

NURSING ASSISTANT – CERTIFICATE

First Year - First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>HEAL1060</td>
<td>Nursing Assistant</td>
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</tbody>
</table>

Total Credits 5

TOTAL PROGRAM REQUIREMENTS 5
PRACTICAL NURSING

Major Description
This program equips graduates with the knowledge and skill set to administer safe, ethical, client-focused nursing care in traditional and alternative health care settings. The LPN role in the nursing process is taught through classroom learning, simulated client care and instructor-supervised experiences in health care surroundings.

Work Environment
Licensed practical nurses, or LPNs, provide direct client care under the supervision of a registered nurse (RN), advanced practice nurse (APN), physician assistant (PA) or physician (MD). Potential employers include hospitals, long-term care facilities, health care clinics, schools, home health agencies and homes for special populations.

Potential Job Titles
- Clinic Nurse
- Charge Nurse
- Home Health Nurse
- Nursing Technician
- Office Nurse

Salary Data
- Average Wage: $20.87/hour
- Top Earners: $25.37/hour

PRACTICAL NURSING – A.A.S. DEGREE
Pending MnSCU Board Approval

Pre-Nursing
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIOL1500</td>
<td>General Biology</td>
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<tr>
<td>COSO1000</td>
<td>Computer and Society Basics</td>
<td>1</td>
</tr>
<tr>
<td>PSYC1350</td>
<td>Lifespan Development</td>
<td>4</td>
</tr>
<tr>
<td>SPEE1020</td>
<td>Interpersonal Communication</td>
<td>3</td>
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<tr>
<td>ENGL1150</td>
<td>Composition I</td>
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Total Credits 15

First Year - First Semester
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HEAL1150</td>
<td>Health Career Math</td>
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<tr>
<td>PNSG1250</td>
<td>Nutrition and Diet Therapy</td>
<td>2</td>
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<tr>
<td>PNSG1000</td>
<td>Foundations of Nursing Practice I</td>
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<tr>
<td>BIOL2020</td>
<td>Microbiology</td>
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<tr>
<td>BIOL2000</td>
<td>Anatomy and Physiology I</td>
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<td>PHIL1350</td>
<td>Medical Ethics</td>
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Total Credits 16

First Year - Summer Session
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<tr>
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<tbody>
<tr>
<td>BIOL2010</td>
<td>Anatomy and Physiology II</td>
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Total Credits 4

First Year - Second Semester
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<td>Foundations of Nursing Practice II</td>
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<td>PNSG1350</td>
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<tr>
<td>PNSG1400</td>
<td>Adult Health Nursing I</td>
<td>4</td>
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<tr>
<td>PNSG1500</td>
<td>Adult Health Nursing II</td>
<td>3</td>
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<tr>
<td>PNSG1530</td>
<td>Beginning Clinical</td>
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<tr>
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<td>Clinical Practice I</td>
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Total Credits 16

Second Year - First Semester
<table>
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<th>Course</th>
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<th>Credits</th>
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<tr>
<td>PNSG1750</td>
<td>Mental Health Nursing</td>
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<td>PNSG1560</td>
<td>Clinical Practice II</td>
<td>3</td>
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<tr>
<td>PNSG1570</td>
<td>Clinical Practice III</td>
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<td>PNSG1580</td>
<td>Clinical Practice IV</td>
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<tr>
<td>PNSG1805</td>
<td>Maternal and Child Health</td>
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Total Credits 12

TOTAL PROGRAM REQUIREMENTS 63

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

The transfer agreement with Metropolitan State University (LPN to BSN) also requires the following:
MATS1251 Statistics - 4 credits, MnTC Goal 5 - 3 credits.
PRACTICAL NURSING – DIPLOMA  
Pending MnSCU Board Approval

**Pre-Nursing**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>COS1000</td>
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<td>PSYC1350</td>
<td>Lifespan Development</td>
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<td>Interpersonal Communication</td>
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**First Year - First Semester**

<table>
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<tr>
<td>HEAL1101</td>
<td>Anatomy and Physiology</td>
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<tr>
<td>HEAL1150</td>
<td>Health Career Math</td>
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<td>PNSG1250</td>
<td>Nutrition and Diet Therapy</td>
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<td>PNSG1000</td>
<td>Foundations of Nursing Practice I</td>
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<td>PHIL1350</td>
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**First Year - Second Semester**

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<tr>
<td>PNSG1100</td>
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<td>Pharmacology</td>
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<tr>
<td>PNSG1400</td>
<td>Adult Health Nursing I</td>
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<td>PNSG1500</td>
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**Second Year - First Semester**

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<tr>
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<td>Mental Health Nursing</td>
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<td>PNSG1560</td>
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<td>PNSG1570</td>
<td>Clinical Practice III</td>
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<tr>
<td>PNSG1580</td>
<td>Clinical Practice IV</td>
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<tr>
<td>PNSG1805</td>
<td>Maternal and Child Health</td>
<td>2</td>
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<td></td>
<td><strong>Total Credits</strong></td>
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</table>

**TOTAL PROGRAM REQUIREMENTS**  51

*This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.*
Technical Careers

PROGRAMS OF STUDY
Biomedical Equipment Technology 85
Civil Engineering Technology 87
Concrete & Masonry 88
Electrical Construction & Maintenance 90
Electrical Lineworker 92
Nanoscience Technology 94
Nuclear Energy Maintenance 95
Welding Technology 96

TECHIES UNITE
Technology is fundamentally a collection of techniques. The foundation of any technical career is the mastery of those techniques. Although the tools of the trade change from field to field, the technical expert is the one constant working it all out.

Our Technical Careers programs offer a range of choices for students searching for their place in a technological world. From the tried-and-true methods of the master mason to the futuristic endeavors of the nanotechnologist, people in technical careers are the keystones of civilization.

TRAITS OF THE TRADE
The best technicians share these essential qualities:
• Inventive nature
• Commitment to excellence
• Attention to detail
• Powerful work ethic
• Safety consciousness
• Knack for concentration
• Adaptability
• Willingness to learn
• Superior motor skills
• Common sense
• Mathematical aptitude
• Gift for spatial perception

Unless otherwise specified, salary data is sourced from isek.org.
“Where there is the necessary technical skill to move mountains, there is no need for the faith that moves mountains.”

— Eric Hoffer —
BIOMEDICAL EQUIPMENT TECHNOLOGY

Major Description
Students are trained to work as biomedical equipment technicians, more commonly known as BMETs. They test the performance and operating characteristics of medical electronic/electro-mechanical equipment of moderate to high complexity to ensure compliance with established performance and safety standards. Graduates are qualified to maintain life support equipment found in hospitals and medical centers.

Work Environment
BMETs find employment with hospitals, clinics, universities, equipment manufacturers and contract service providers. They generally work indoors and some travel may be required. BMETs work with medical professionals at all levels to assure the safe and effective use of sophisticated electronic medical devices.

Potential Job Titles
- Biomedical Electronics Technician
- Biomedical Engineering Technician
- Biomedical Equipment Specialist
- Electromedical Equipment Repairer
- Medical Equipment Repairer
- Field Service Technician

Salary Data
- Average Wage: $25.02/hour
- TopEarners: $33.13/hour

BIOMEDICAL EQUIPMENT TECHNOLOGY - A.A.S. DEGREE

First Year - First Semester
<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BMET1112</td>
<td>DC Electricity</td>
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</tr>
<tr>
<td>BMET1116</td>
<td>Solid State Electronics and Lab</td>
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<tr>
<td>BMET1123</td>
<td>AC Electricity</td>
<td>3</td>
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<td>ISTC1040</td>
<td>Network Systems I</td>
<td>3</td>
</tr>
<tr>
<td>COML1400</td>
<td>Introduction to Computers</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
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</table>

First Year - Second Semester
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BMET1136</td>
<td>Managing Customer Satisfaction in the Health</td>
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</tr>
<tr>
<td></td>
<td>Care Environment</td>
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<tr>
<td>BMET1530</td>
<td>Digital and Micro Processors</td>
<td>3</td>
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<tr>
<td>ISTC1010</td>
<td>Microcomputer Maintenance</td>
<td>3</td>
</tr>
<tr>
<td>ISTC2005</td>
<td>Network System II</td>
<td>3</td>
</tr>
<tr>
<td>SPEE1020</td>
<td>Interpersonal Communication</td>
<td>3</td>
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<tr>
<td>INTS1000</td>
<td>College Success Skills</td>
<td>2</td>
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<td><strong>Total Credits</strong></td>
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Second Year - First Semester
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<tr>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BMET1121</td>
<td>Administrative Functions</td>
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</tr>
<tr>
<td>BMET1241</td>
<td>Mechanical Systems</td>
<td>3</td>
</tr>
<tr>
<td>HEAL1502</td>
<td>Medical Terminology</td>
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<tr>
<td>ISTC2010</td>
<td>Network Systems III</td>
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<tr>
<td>BIOL1310</td>
<td>Introduction to Anatomy and Physiology</td>
<td>4</td>
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<tr>
<td>ENGL1150</td>
<td>Composition I</td>
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<td><strong>Total Credits</strong></td>
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Second Year - Second Semester
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BMET1110</td>
<td>Introduction to Biomedical Technology</td>
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<tr>
<td>BMET1114</td>
<td>Wireless Communication</td>
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<tr>
<td>BMET1221</td>
<td>Instrumentation I</td>
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</tr>
<tr>
<td>BMET1231</td>
<td>Instrumentation II</td>
<td>4</td>
</tr>
<tr>
<td>BMET2970</td>
<td>Biomedical Equipment Tech. Internship</td>
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</tr>
<tr>
<td>EMRG1017</td>
<td>First Responder</td>
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<tr>
<td>ISTC2015</td>
<td>Network Systems IV</td>
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</table>

TOTAL PROGRAM REQUIREMENTS 69

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.
**BIOMEDICAL EQUIPMENT TECHNOLOGY – CERTIFICATE**

This certificate is designed for students with a degree in Electronics.

**First Year - First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BMET1121</td>
<td>Administrative Functions</td>
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</tr>
<tr>
<td>BMET1136</td>
<td>Managing Customer Satisfaction in the Health Care Environment</td>
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<td>BMET1241</td>
<td>Mechanical Systems</td>
<td>3</td>
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<tr>
<td>HEAL1502</td>
<td>Medical Terminology</td>
<td>2</td>
</tr>
<tr>
<td>BIOL1310</td>
<td>Introduction to Anatomy and Physiology</td>
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**First Year - Second Semester**

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<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>BMET1110</td>
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<td>BMET1221</td>
<td>Instrumentation I</td>
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<td>BMET1231</td>
<td>Instrumentation II</td>
<td>4</td>
</tr>
<tr>
<td>BMET2970</td>
<td>Biomedical Equipment Tech. Internship</td>
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<td><strong>Total Credits</strong></td>
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</tbody>
</table>

**TOTAL PROGRAM REQUIREMENTS 26**

This is a sample course sequence resulting in a certificate. Please consult your program advisor regarding your academic plans.
CIVIL ENGINEERING TECHNOLOGY

Major Description
This program incorporates state-of-the-art labs and survey equipment along with CAD and other computer applications. Working in a diverse field with excellent employment opportunities nationwide, graduates will be involved in all aspects of the construction process including the planning and design as well as management and inspections of buildings, bridges, highways, subdivisions, and commercial and industrial facilities.

Work Environment
Graduates may land rewarding careers with consulting engineering companies, construction companies, and governmental agencies such as the MN Department of Transportation, or the engineering department of a local municipality.

Potential Job Titles
• Civil Engineering Technician
• Civil Engineering Designer
• Civil Engineering Technical Analyst

Salary Data (payscale.com)
• Salary Range: $13.90-$19.76/hour

CIVIL ENGINEERING TECHNOLOGY – A.A.S. DEGREE
Pending MnSCU Approval

First Year - First Semester
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CIVL1110</td>
<td>Introduction to Civil Engineering Technology</td>
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<td>CIVL1120</td>
<td>Basic CAD</td>
<td>3</td>
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<tr>
<td>CIVL1130</td>
<td>Beginning Surveying</td>
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</tr>
<tr>
<td>CIVL1140</td>
<td>Civil Engineering/Government</td>
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<td>CIVL1150</td>
<td>Introduction to GIS</td>
<td>3</td>
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<tr>
<td>CIVL1160</td>
<td>Project Management</td>
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<td>COML1400</td>
<td>Intro to Computers</td>
<td>3</td>
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First Year - Second Semester
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<tbody>
<tr>
<td>CIVL1210</td>
<td>Materials Testing</td>
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<td>CIVL1220</td>
<td>Civil Engineering Technology Drafting</td>
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<td>CIVL1230</td>
<td>Intermediate Surveying</td>
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<tr>
<td>CIVL1240</td>
<td>GPS and Construction Staking</td>
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<td>College Algebra</td>
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Second Year - First Semester
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<tr>
<td>CIVL2120</td>
<td>Construction Inspection</td>
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<td>CIVL2130</td>
<td>Soil Mechanics Survey</td>
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<td>CIVL2140</td>
<td>Specifications and Contract Administration</td>
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<tr>
<td>CIVL2150</td>
<td>Eco-Sensitive Design</td>
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<tr>
<td>SPEE1020</td>
<td>Interpersonal Communication</td>
<td>3</td>
</tr>
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<td></td>
<td><strong>Total Credits</strong></td>
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Second Year - Second Semester
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CIVL2210</td>
<td>Project Design: Utilities Design, Road Design, Grading</td>
<td>5</td>
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<tr>
<td>CIVL2220</td>
<td>Properties of Construction Materials</td>
<td>3</td>
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<tr>
<td>CIVL2230</td>
<td>Hydrology and Storm Water Management</td>
<td>3</td>
</tr>
<tr>
<td>CIVL2240</td>
<td>Estimating</td>
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<td>MATS1320</td>
<td>College Trigonometry</td>
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TOTAL PROGRAM CREDITS 72

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

** See General Education A.A.S. degree requirements on page 113.
CONCRETE & MASONRY

Delivery: Daytime Classes
Start: Fall Semester, Full-Time
Location: Rosemount Campus

Major Description
This program prepares students for careers as cement, brick and block masons in both residential and commercial construction. Students learn fundamental construction skills while studying concrete properties, testing and repair. Specialty concrete properties, concrete production facilities operation and concrete construction methods are also covered in the program’s curriculum.

Work Environment
Cement, block and brick masons work with concrete, one of the most common and durable of all construction materials. They usually work outdoors. Winter work slowdowns are diminishing thanks to new processes and materials that permit work in harsher weather conditions.

Potential Job Titles
- Concrete Finisher
- Cementer
- Bricklayer
- Block Worker
- Stonemason
- Tile Setter

Salary Data
- Average Wage: $25.66/hour
- Top Earners: $34.77/hour

CONCRETE & MASONRY – A.A.S. DEGREE

First Year - First Semester
- CONC1600 Shop Theory 2
- CONC1601 Shop I: Site Preparation for Construction 6
- CONC1602 Shop II: Brick and Block Construction 4
- CONC1604 Foundations, Concrete, & Safety for Masons 4
- CONC1605 Math for Masons 2

Total Credits 18

First Year - Second Semester
- CONC1606 Testing of Mortar and Concrete 3
- CONC1610 Concrete Problems: Diagnosis, Prevention, & Resolution 2
- CONC1613 Shop III: Advanced. Brick & Block Construction 4
- CONC1614 Shop IV: Integrated Concrete Systems 4
- CONC1615 Blueprint Reading Estimating 2
- COML1400 Introduction to Computers 3

Total Credits 18

Second Year - First Semester
- ENTR1860 Business Plan Development 3
- OFFC1340 Quick Books Pro Basics 2
- SMGT1000 Principles of Supervision 3
- SPEE1020 Interpersonal Communication 3
- General Education Elective (MnTC Goal 3 or 4)** 4

Total Credits 15

Second Year - Second Semester
- SMGT1028 Management Effectiveness 3
- SMGT1033 Business Law and Ethics 3
- ENGL1150 Composition I 3
- General Education Elective** 7

Total Credits 16

TOTAL PROGRAM REQUIREMENTS 67

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
## CONCRETE & MASONRY – DIPLOMA

### First Year - First Semester

<table>
<thead>
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<tr>
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<td>Shop I: Site Preparation for Construction</td>
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<td>CONC1602</td>
<td>Shop II: Brick and Block Construction</td>
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<td>CONC1604</td>
<td>Foundations, Concrete, &amp; Safety for Masons</td>
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<td>CONC1605</td>
<td>Math for Masons</td>
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**Total Credits 18**

### First Year - Second Semester

<table>
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<td>Testing of Mortar and Concrete</td>
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<td>Concrete Problems: Diagnosis, Prevention, &amp; Resolution</td>
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<td>CONC1613</td>
<td>Shop III: Adv. Brick &amp; Block Construction</td>
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<td>CONC1614</td>
<td>Shop IV: Integrated Concrete Systems</td>
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<tr>
<td>CONC1615</td>
<td>Blueprint Reading Estimating</td>
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**Total Credits 15**

**TOTAL PROGRAM REQUIREMENTS 33**

This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.
# ELECTRICAL CONSTRUCTION & MAINTENANCE TECHNOLOGY

**Major Description**

Designed to give students hands-on experience for entry-level positions in electrical construction, installation, operation and maintenance occupations, this program delivers technical courses in electrical/electronics theory plus the installation, maintenance, wiring, and testing of electrical/electronic apparatus and control devices through the application of the National Electric Code.

**Work Environment**

Able to work indoors and out, electricians must be safety conscious and able to distinguish colors. They find work with electrical contractors, private companies and plants, and manufacturers of electrical equipment.

**Potential Job Titles**

- Construction Electrician
- Electrical Installer
- Electrical Maintenance Worker
- Industrial Electrician
- Electrical System Specialist
- Solar Installer

**Salary Data**

- Average Wage: $30.30/hour
- Top Earners: $40.81/hour

## ELECTRICAL CONSTRUCTION & MAINTENANCE TECHNOLOGY - A.A.S. DEGREE

### First Year - First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ELEC1110</td>
<td>D. C. Electricity Theory and Lab</td>
<td>3</td>
</tr>
<tr>
<td>ELEC1120</td>
<td>A. C. Electricity Theory and Lab</td>
<td>3</td>
</tr>
<tr>
<td>ELEC1130</td>
<td>National Electrical Code I</td>
<td>3</td>
</tr>
<tr>
<td>ELEC1140</td>
<td>Blueprint Reading for Technicians</td>
<td>3</td>
</tr>
<tr>
<td>MATS1205</td>
<td>Math for Electricians</td>
<td>3</td>
</tr>
<tr>
<td>COML1400</td>
<td>Introduction to Computers</td>
<td>3</td>
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### First Year - Second Semester

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<th>Course Title</th>
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<tr>
<td>ELEC1210</td>
<td>Analog/ Digital Electronics Theory</td>
<td>2</td>
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<tr>
<td>ELEC1220</td>
<td>Analog/ Digital Electronics Lab</td>
<td>4</td>
</tr>
<tr>
<td>ELEC1230</td>
<td>Construction Skills &amp; Intro to Wiring Theory</td>
<td>3</td>
</tr>
<tr>
<td>ELEC1240</td>
<td>Construction Skills &amp; Intro to Wiring Lab</td>
<td>6</td>
</tr>
<tr>
<td>SPEE1020</td>
<td>Interpersonal Communication</td>
<td>3</td>
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<td><strong>Total Credits</strong></td>
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### First Year - Summer Session

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<td>ENGL1150</td>
<td>Composition I</td>
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### Second Year - First Semester

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<td>ELEC2110</td>
<td>Electrical Apparatus Theory</td>
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<td>ELEC2120</td>
<td>Electrical Apparatus Lab</td>
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<tr>
<td>ELEC2131</td>
<td>Programmable Logic Controllers Theory</td>
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<td>ELEC2141</td>
<td>Programmable Logic Controllers Lab</td>
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### Second Year - Second Semester

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ELEC2210</td>
<td>National Electrical Code II</td>
<td>3</td>
</tr>
<tr>
<td>ELEC2220</td>
<td>Electrical/Electronic Controls &amp; Systems Theory</td>
<td>2</td>
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<tr>
<td>ELEC2230</td>
<td>Electrical/Electronic Controls &amp; Systems Lab</td>
<td>4</td>
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<tr>
<td>ELEC2241</td>
<td>Industrial &amp; Maintenance Wiring Theory/Lab</td>
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<td>ELEC2251</td>
<td>Commercial Wiring Theory and Lab</td>
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<td>ELEC2260</td>
<td>Heating, Ventilation, and Air Conditioning Wiring Theory and Lab</td>
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### Summer Session - Second Year

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<thead>
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**This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.**

**Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.**
### ELECTRICAL CONSTRUCTION & MAINTENANCE TECHNOLOGY - DIPLOMA

#### First Year - First Semester

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#### First Year - Second Semester

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<td>4</td>
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<td>ENGL1150</td>
<td>Composition I (or ENGL1000)</td>
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#### Second Year - Second Semester

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</table>

**TOTAL PROGRAM REQUIREMENTS 72**

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This is a sample course sequence resulting in an diploma. Please consult your program advisor regarding your academic plans.
**ELECTRICAL LINEMAN**

**Delivery:** Daytime Classes  
**Start:** July, Full-Time  
**Location:** Rosemount Campus

**Major Description**
Graduates are prepared to join the electrical power industry workforce as safe and knowledgeable apprentices. Along with extensive hands-on experience building power lines, students also practice both overhead and underground techniques. Campus instruction facilities include a large outdoor training field for pole climbing, line construction, bucket-truck operation and erecting power lines using power-line construction trucks.

**Work Environment**
Able to perform strenuous physical duties, electrical linemen work outdoors building overhead power lines and/or laying underground cable. Tool use and care plus safety awareness are extremely important.

**Potential Job Titles**
- Construction Lineman
- Line Crewman
- Electric Power Line Installer
- Line Erector
- Line Installer-Repairer
- Power Lineman

**Salary Data**
- Average Wage: $31.41/hour
- Top Earners: $40.04/hour

---

**ELECTRICAL LINEMAN – A.A.S. DEGREE**

<table>
<thead>
<tr>
<th>July Start</th>
<th>ELLW1110 Distribution I</th>
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<tbody>
<tr>
<td>ELLW1120 Utility Equipment and Tools</td>
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| First Year - Fall Semester | ELLW1130 Basic Electricity | 2 |
| ELLW1140 Distribution IIA | 4 |
| ELLW1141 Distribution IIB | 4 |
| ELLW1150 Construction Planning and Practices | 2 |
| ELLW1160 Transformers I | 4 |
| COML1400 Introduction to Computers | 3 |
| **Total Credits** | **19** |

| First Year - Spring Semester | ELLW1162 Transformers II | 4 |
| ELLW1170 Line Construction and Maintenance A | 4 |
| ELLW1172 Line Construction and Maintenance B | 4 |
| ELLW1180 Underground Cable and Fault Locating | 2 |
| ELLW1185 Electrical Industry Search Skills | 1 |
| HEAL1030 Emergency Care Technical Trades | 3 |
| **Total Credits** | **18** |

| First Year - Summer Session | SPEE1020 Interpersonal Communication | 3 |
| ENGL1150 Composition I | 3 |
| General Education Elective (MnTC Goal 3 or 4)** | 4 |
| General Education Elective** | 7 |
| **Total Credits** | **17** |

**TOTAL PROGRAM REQUIREMENTS 60**

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

**Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.”**
# ELECTRICAL LINEMAN – DIPLOMA

**July Start**

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<td>Utility Equipment and Tools</td>
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**First Year - Fall Semester**

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<tr>
<td>ELLW1130</td>
<td>Basic Electricity</td>
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<td>ELLW1140</td>
<td>Distribution IIA</td>
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<tr>
<td>ELLW1141</td>
<td>Distribution IIB</td>
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<tr>
<td>ELLW1150</td>
<td>Construction Planning and Practices</td>
<td>2</td>
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<td>ELLW1160</td>
<td>Transformers I</td>
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**First Year - Spring Semester**

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<td>ELLW1170</td>
<td>Line Construction and Maintenance A</td>
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<td>ELLW1172</td>
<td>Line Construction and Maintenance B</td>
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<tr>
<td>ELLW1180</td>
<td>Underground Cable and Fault Locating</td>
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<td>ELLW1185</td>
<td>Electrical Industry Search Skills</td>
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<td>HEAL1030</td>
<td>Emergency Care Technical Trades</td>
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**TOTAL PROGRAM REQUIREMENTS 43**

*This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.*

**General Education – Select from SPEE1020, COML1400, ENGL1000 or ENGL1150.*
NANOSCIENCE TECHNOLOGY

Delivery: Daytime Classes
Start: Fall Semester, Full- or Part-Time
Location: Rosemount Campus (Semester 1-3), University of Minnesota (Capstone Semester 4)

Major Description
This program prepares students for careers in the nanobiotech, nanomaterials and nanoelectronics industries. Offered through a partnership with the University of Minnesota, the program gives graduates the skills and knowledge to land jobs in companies and corporations applying nanotechnology to product development, testing, research and development, and manufacturing design.

Work Environment
Nanoscience technicians work in research, production, marketing and business environments where nanoscale is integral to the industry. The U.S. nanotech market is expected to mushroom to $1 trillion by 2012.

Potential Job Titles
- Nanotechnologist
- Nanoscience Technician
- Nanoelectronics Expert
- Nanobiotech Researcher
- Nanoscale Fabrication Technician
- Nanomaterials Research Associate

Salary Data (Small Times survey)
- Average Salary (Global): $42,662/year

NANOSCIENCE TECHNOLOGY - A.A.S. DEGREE

First Year - First Semester
NANO1100 Fundamentals of Nanoscience I 3
PHYS1100 College Physics I 4
BIOL1500 General Biology 4
COML1400 Introduction to Computers 3
MATS1300 College Algebra 4
Total Credits 18

First Year - Second Semester
NANO1200 Fundamentals of Nanoscience II 3
NANO1210 Computer Simulation 1
CHEM1500 Introduction to Chemistry 4
MATS1251 Statistics 4
PHYS1200 College Physics II 4
SPEE1020 Interpersonal Communication 3
Total Credits 19

Second Year - First Semester
NANO2101 Nanoelectronics 3
NANO2111 Nanobiotechnology/Agriculture 3
NANO2121 Nanomaterials 3
NANO2131 Manufacturing Quality Assurance 2
NANO2140 Interdisciplinary Lab 3
NANO2151 Career Planning and Industry Tours 1
ENGL1150 Composition I 3
Total Credits 18

Second Year - Second Semester
Capstone at the University of Minnesota
MT 3111 Elements of Microelectronic Manufacturing 3
MT 3112 Elements of Micro & Nano Manufacturing Lab 1
MT 3121 Thin Films Deposition 3
MT 3131 Introduction to Materials Characterization 3
MT 3132 Materials Characterization Laboratory 1
MT 3141 Principles & Applications of Bionanotechnology 3
MT 3142 Nanoparticles and Biotechnology Laboratory 1
NANO2970 Industry Internship & Observation 2
Total Credits 17

TOTAL PROGRAM REQUIREMENTS 72

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.
Major Description
This program trains students as nuclear energy maintenance technicians. Graduates will have the skills and knowledge necessary to obtain entry-level employment with strong potential for advancement in the nuclear energy industry. The program utilizes the Uniform Curriculum Guide, which was developed as part of an industry-wide workforce strategy to standardize curriculum and increase the efficiency of new, qualified nuclear workers focused on maintenance and non-licensed operations.

Work Environment
Nuclear energy maintenance techs work in nuclear generating plants. Xcel Energy currently operates two such plants in Minnesota, the Prairie Island NGP near Red Wing, and the Monticello NGP near St. Cloud, which produce more than 25 percent of the electricity the company provides to its customers in the Upper Midwest.

Potential Job Titles
- Nuclear Technician
- Nuclear Technology Specialist
- Nuclear Energy Maintenance Technician

Salary Data
- Average Wage (U.S.): $32.93/hour
- Top Earners (U.S.): $45.95/hour

NUCLEAR ENERGY MAINTENANCE TECHNICIAN – A.A.S. DEGREE

First Year - First Semester
- Industrial Safety 2
- Introduction to Traditional & Renewable Energy 3
- Fundamentals of AC/DC Electricity I 3
- ENGL1150 Composition I 3
- CHEM1500 Introduction to Chemistry (or PHYS1100) 4
- Total Credits 15

First Year - Second Semester
- Fundamentals of AC/DC Electricity II 3
- Digital Electronics 3
- Mechanical Fundamentals 3
- BIOL1110 Environmental Science 3
- MATS1200 Concepts of Mathematics 3
- Total Credits 15

Second Year - First Semester
- Mechanical Fundamentals for Process Control 3
- Programmable Logic Controls Fundamentals 3
- Pneumatics 3
- Hydraulics 3
- Process Controls/Instrumentation 3
- Total Credits 15

Second Year - Second Semester
- Nuclear Energy 10
- Print Reading 3
- General Education Elective** 2
- Total Credits 15

TOTAL PROGRAM REQUIREMENTS 60

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

** General Education – Select from SPEE1020, COML1400 or ENGL1150.
WELDING TECHNOLOGY

Delivery: Daytime Classes
Start: Fall Semester, Full-Time
Location: Rosemount Campus

Major Description
This program provides training in many areas of the welding trades. Subjects covered include electric arc, wire feed, Heliarc welding, oxyacetylene welding and various flame-cutting processes. Students work with a wide variety of metals, including steel, stainless steel, aluminum and cast iron. Shop fabrication, math, and blueprint reading are also covered in the curriculum.

Work Environment
Welders with the ability to fabricate and weld metal products from blueprints are needed in a wide range of industries, including heavy construction, heavy fabrication (such as tanks and machinery), transportation units, packaging, and material conveyance and electronics.

Potential Job Titles
• Arc Welder
• Wire Feed Welder
• Aluminum Welder
• Electric Spot Welder
• Tig Welder
• Oxyacetylene Welder
• Welding Specialist

Salary Data
• Average Wage: $20.27/hour
• Top Earners: $25.61/hour

WELDING TECHNOLOGY – DIPLOMA

First Year - First Semester
WELD1100 Welding Safety and Theory 2
WELD1102 Shielded Metal Arc Welding I 4
WELD1104 Semi-Automatic Arc Welding I 3
WELD1106 Gas Tungsten Arc Welding I 3
WELD1108 Blueprint Reading 3
Total Credits 15

First Year - Second Semester
WELD1110 Layout 3
WELD1112 Welding Fabrication/Qualification 3
WELD1114 Shielded Metal Arc Welding II 4
WELD1116 Semi-Automatic Arc Welding II 2
WELD1118 Gas Tungsten Arc Welding II 2
General Education** 3
Total Credits 17

TOTAL PROGRAM REQUIREMENTS 32

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

** General Education – Select from SPEE1020, COML1400 or ENGL1150.
Transportation Careers

PROGRAMS OF STUDY

Auto Body Collision Technology 99
Automotive Technician 102
GM Automotive Service Program 105
Heavy Construction Equipment Technology 106
Heavy Duty Truck Technology 108
Railroad Conductor Technology 110

WHEELS IN MOTION

People and goods are constantly on the move. Transportation began with human power, but today’s modes of transport are literally all over the map—with road and rail covering much of the ground.

Transportation programs provide students with the knowledge and skills to get rolling in the career direction of their choice. Whether as a railway conductor on the engineer track or a heavy equipment mechanic servicing a Caterpillar track loader, our graduates always get where they’re going.

TRAITS OF THE TRADE

People drawn to careers in the transportation fields are typically:

- Innovative
- Adaptable
- Strong-minded
- Analytical
- Troubleshooters
- Good with hands-on tools
- Mechanically inclined
- Handy with figures
- Natural communicators
- Independent
- Alert to their surroundings
- Attuned to all things on wheels

Unless otherwise specified, salary data is sourced from isek.org.
“Shutting off the thought process is not rejuvenating; the mind is like a car battery – it recharges by running.”

— Bill Watterson —
AUTO BODY COLLISION TECHNOLOGY

Major Description
Auto body collision technicians are the skilled professionals who accurately diagnose and repair collision-damaged vehicles. Repairing today’s advanced passenger vehicles requires knowledge and training in metals, plastics, structural repairs and refinishing. Instruction involves classroom theory, demonstrations and the hands-on repair of customer vehicles. Classroom presentation includes I-CAR “Live” Collision Repair Training.

Work Environment
Skilled graduates find challenging careers as body, frame or paint technicians, adjusters, appraisers and managers in franchise or independent body shops, dealerships, specialty shops and insurance companies.

Potential Job Titles
- Collision Repair Technician
- Detailer
- Estimator
- Glass Installer
- Paint Prepper
- Paint Technician

Salary Data
- Average Wage: $24.56/hour
- Top Earners: $36.80/hour

AUTO BODY COLLISION TECHNOLOGY – A.A.S. DEGREE

First Year - First Semester
<table>
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<td>Reconditioning and Detailing</td>
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<td>SPEE1020</td>
<td>Interpersonal Communication</td>
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First Year - Second Semester
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<td>ABCT1214</td>
<td>Refinishing Preparation II</td>
<td>3</td>
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<td>ABCT1216</td>
<td>Refinishing Application</td>
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<td>ABCT1230</td>
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<td>ENGL1150</td>
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Second Year - First Semester
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<tr>
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<td>Body Electrical</td>
<td>2</td>
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<tr>
<td>ABCT2102</td>
<td>Shop Management and Estimating</td>
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<tr>
<td>ABCT2106</td>
<td>Collision Damage Repair/Replacement</td>
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<tr>
<td>ABCT2108</td>
<td>Unibody/Frame/Wheel Alignment I</td>
<td>4</td>
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<td>General Education Elective**</td>
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Second Year - Second Semester
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<td>Unibody/Frame/Wheel Alignment II</td>
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<td>ABCT2230</td>
<td>Body Mechanical and Air Conditioning</td>
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<tr>
<td>ABCT2970</td>
<td>Autobody Internship</td>
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</table>

TOTAL PROGRAM REQUIREMENTS 72

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
### AUTO BODY COLLISION TECHNOLOGY - DIPLOMA

#### First Year - First Semester
- ABCT1111 Collision Repair Welding I 2
- ABCT1120 Sheet Metal Repair 5
- ABCT1130 Refinishing Preparation I 2
- ABCT1142 Glass, Trim and Hardware 4
- ABCT1150 Reconditioning and Detailing 2
- SPEE1020 Interpersonal Communication 3

**Total Credits 18**

#### First Year - Second Semester
- ABCT1212 Collision Repair Welding II 2
- ABCT1214 Refinishing Preparation II 3
- ABCT1216 Refinishing Application 5
- ABCT1230 Auto Body Plastic Repair 2
- ENGL1000 Applied Business Writing (or ENGL1150) 3

**Total Credits 15**

#### Second Year - First Semester
- ABCT2100 Body Electrical 2
- ABCT2102 Shop Management and Estimating 2
- ABCT2106 Collision Damage Repair/Replacement 6
- ABCT2108 Unibody/Frame/Wheel Alignment I 4
- General Education Elective** 3

**Total Credits 17**

#### Second Year - Second Semester
- ABCT2212 Unibody/Frame/Wheel Alignment II 6
- ABCT2230 Body Mechanical and Air Conditioning 3
- ABCT2970 Autobody Internship 5

**Total Credits 14**

**TOTAL PROGRAM REQUIREMENTS 64**

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### BODY TECHNICIAN - CERTIFICATE

#### First Year - First Semester
- ABCT1111 Collision Repair Welding I 2
- ABCT1120 Sheet Metal Repair 5
- ABCT1142 Glass, Trim and Hardware 4
- ABCT1212 Collision Repair Welding II 2

**Total Credits 13**

#### First Year - Second Semester
- ABCT2100 Body Electrical 2
- ABCT2106 Collision Damage Repair/Replacement 6
- ABCT2108 Unibody/Frame/Wheel Alignment I 4
- ABCT2230 Body Mechanical and Air Conditioning 3

**Total Credits 15**

**TOTAL PROGRAM REQUIREMENTS 28**

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This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.

**Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.**

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This is a sample course sequence resulting in a certificate. Please consult your program advisor regarding your academic plans.
**PAINT PREPARATION – CERTIFICATE**

<table>
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<td>ABCT1130</td>
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<td>ABCT1142</td>
<td>Glass, Trim and Hardware</td>
<td>4</td>
</tr>
<tr>
<td>ABCT1150</td>
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<tr>
<td>ABCT1214</td>
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<td>ABCT1216</td>
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<tr>
<td>ABCT1230</td>
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**TOTAL PROGRAM REQUIREMENTS 21**

This is a sample course sequence resulting in a certificate. Please consult your program advisor regarding your academic plans.

**General Education – Select from SPEE1020, COML1400 or ENGL1150.**

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**ESTIMATOR – CERTIFICATE**

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<td>ABCT1120</td>
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<td>ABCT2102</td>
<td>Shop Management and Estimating</td>
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<tr>
<td>ABCT2108</td>
<td>Unibody/Frame/Wheel Alignment I</td>
<td>4</td>
</tr>
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**TOTAL PROGRAM REQUIREMENTS 14**

This is a sample course sequence resulting in a certificate. Please consult your program advisor regarding your academic plans.

**General Education – Select from SPEE1020, COML1400 or ENGL1150.**
AUTOMOTIVE TECHNICIAN

Major Description
As skilled professionals, automotive technicians accurately diagnose mechanical problems related to engine, transmission, fuel injection, suspension and electrical systems. Students learn to maintain and repair engine, chassis, drive train, front-wheel drive, fuel injection, and electrical and emission systems. Instruction involves classroom theory, demonstrations, computer applications and hands-on car repair.

Work Environment
Automotive technicians land jobs at dealerships, independent shops and specialty shops. They generally work indoors with good ventilation and lighting as well as strong safety precautions.

Potential Job Titles
- Automobile Mechanic
- Automobile Service Advisor
- Automotive Repair Technician
- Automotive Technician
- Auto Mechanic
- Automotive Engineer

Salary Data
- Average Wage: $20.35/hour
- Top Earners: $30.78/hour

First Year - First Semester
AUTM2011 Suspension, Steering, & Alignment Systems 3
AUTM2025 Brakes 3
AUTM2032 Manual Transaxle, Clutches, Transfer Case and Differentials 3
AUTM2100 Basic Electricity 1
SPEE1020 Interpersonal Communication 3
Total Credits 18

First Year - Second Semester
AUTM2110 Automotive Engine Electrical Systems 3
AUTM2136 Heating, Ventilation and Air Conditioning 3
AUTM2141 Advanced Automotive Electronic Systems 5
AUTM2315 Ignition System Operation, Diagnosis and Repair 3
ENGL1150 Composition I 3
Total Credits 17

Second Year - First Semester
AUTM2125 Engine Theory and Operation 4
AUTM2215 Automatic Transmission/Transaxle Theory and Operation 4
AUTM2225 Advanced Engine and Transmission and Repair 6
General Education Elective (MnTC Goal 3 or 4)** 3
General Education Elective** 3
Total Credits 20

Second Year - Second Semester
AUTM2305 Fuel System Operation Diagnosis and Repair 3
AUTM2315 Ignition System Operation, Diagnosis and Repair 3
AUTM2325 Computer Systems Operation Diagnosis and Repair 3
AUTM2330 Advanced Driveability 5
General Education Elective** 3
Total Credits 17

TOTAL PROGRAM REQUIREMENTS 72

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
AUTOMOTIVE TECHNICIAN – DIPLOMA

First Year - First Semester
- AUTM2011 Suspension, Steering and Alignment Systems 3
- AUTM2025 Brakes 3
- AUTM2032 Manual Transaxle, Clutches, Transfer Cases and Differentials 3
- AUTM2100 Basic Electricity 1
- AUTM2205 Advanced Driveline and Chassis Systems 5
- SPEE10120 Interpersonal Communication 3

Total Credits 18

First Year - Second Semester
- AUTM2110 Automotive Electrical Systems 3
- AUTM2136 Heating, Ventilation and Air Conditioning 3
- AUTM2141 Advanced Automotive Electronic Systems 5
- AUTM2315 Ignition System Operation, Diagnosis and Repair 3
- ENGL1150 Composition I (or ENGL1000) 3

Total Credits 17

Second Year - First Semester
- AUTM2125 Engine Theory and Operation 4
- AUTM2215 Automatic Transmission/Transaxle 4
- AUTM2225 Advanced Engine and Transmission and Repair 6
- General Education Elective** 2

Total Credits 16

Second Year - Second Semester
- AUTM2305 Fuel System Operation Diagnosis and Repair 3
- AUTM2315 Ignition System Operation, Diagnosis and Repair 3
- AUTM2325 Computer Systems Operation Diagnosis and Repair 3
- AUTM2330 Advanced Driveability 5

Total Credits 14

TOTAL PROGRAM REQUIREMENTS 65

This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.

** General Education – Select from SPEE1020, COML1400 or ENGL1150.

DRIVEABILITY – CERTIFICATE
Pending MnSCU Board Approval

First Year - First Semester
- AUTM2100 Basic Electricity 1
- AUTM2305 Fuel System Operation Diagnosis and Repair 3
- AUTM2315 Ignition System Operation, Diagnosis and Repair 3
- AUTM2325 Computer Systems Operation Diagnosis and Repair 3
- AUTM2330 Advanced Driveability 5

Total Credits 18

TOTAL PROGRAM REQUIREMENTS 18

This is a sample course sequence resulting in a certificate. Please consult your program advisor regarding your academic plans.

** General Education – Select from SPEE1020, COML1400 or ENGL1150.

ENGINES & TRANSMISSION – CERTIFICATE
Pending MnSCU Board Approval

First Year - First Semester
- AUTM2100 Basic Electricity 1
- AUTM2125 Engine Theory and Operation 4
- AUTM2215 Automatic Transmission/Transaxle 4
- AUTM2225 Advanced Engine and Transmission and Repair 6
- General Education Elective** 3

Total Credits 18

TOTAL PROGRAM REQUIREMENTS 18

This is a sample course sequence resulting in a certificate. Please consult your program advisor regarding your academic plans.

** General Education – Select from SPEE1020, COML1400 or ENGL1150.
# AUTOMOTIVE TECHNICIAN

## ELECTRICAL, ELECTRONICS, & HVAC – CERTIFICATE
Pending MnSCU Board Approval

<table>
<thead>
<tr>
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<tbody>
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<td>AUTM2100 Basic Electricity</td>
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<td>AUTM2110 Automotive Engine Electrical Systems</td>
<td>3</td>
</tr>
<tr>
<td>AUTM2136 Heating, Ventilation, and Air Conditioning</td>
<td>3</td>
</tr>
<tr>
<td>AUTM2141 Advanced Automotive Electronic Systems</td>
<td>5</td>
</tr>
<tr>
<td>AUTM2315 Ignition System Operation, Diagnosis and Repair</td>
<td>3</td>
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<tr>
<td>General Education**</td>
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</tbody>
</table>

** General Education – Select from SPEE1020, COML1400 or ENGL1150.

** Total Credits ** | 18

** TOTAL PROGRAM REQUIREMENTS ** | 18

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## BRAKES, SUSPENSION AND DRIVELINE – CERTIFICATE
Pending MnSCU Board Approval

<table>
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<td>AUTM2011 Suspension, Steering &amp; Alignment</td>
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<tr>
<td>AUTM2032 Manual Transmission and Driveline</td>
<td>3</td>
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<tr>
<td>AUTM2100 Basic Electricity</td>
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<tr>
<td>AUTM2205 Advanced Driveline and Chassis System</td>
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<td>General Education**</td>
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</table>

** General Education – Select from SPEE1020, COML1400 or ENGL1150.

** Total Credits ** | 18

** TOTAL PROGRAM REQUIREMENTS ** | 18

---

This is a sample course sequence resulting in a certificate. Please consult your program advisor regarding your academic plans.
GM AUTOMOTIVE SERVICE EDUCATIONAL PROGRAM (ASEP)

Major Description
Through DCTC's unique cooperation with General Motors and ACDelco, ASEP trains highly specialized service technicians for GM dealers and ACDelco Total Service Support shops. ASEP labs are equipped with the latest GM technology, including vehicles, components, training aids and technical information. Trained to handle GM's computer-oriented product line, ASEP technicians are prepared to keep pace with future technology.

Work Environment
ASEP grads work as service technicians in General Motors dealerships, including Buick, Cadillac, Chevrolet, GMC or an ACDelco TSS Service Center.

Potential Job Titles
• Automobile Mechanic
• Automobile Service Advisor
• Automotive Repair Technician
• Automotive Technician
• Automotive Engineer
• Automotive Service Manager

Salary Data
• Average Wage: $20.35/hour
• Top Earners: $30.78/hour

AUTOMOTIVE SERVICE – A.A.S. DEGREE

First Year - First Semester
ASEP1101 Automotive Fundamentals 3
ASEP1102 Electrical and Fuel Systems 3
ASEP1201 Dealer Work Experience I 8
INTS1000 College Success Strategies 2
BIOL1110 Environmental Science 3

Total Credits 19

First Year - Second Semester
ASEP1103 Driveability 3
ASEP1105 Heating and Air Conditioning 3
ASEP1202 Dealer Work Experience II 8
COML1400 Introduction to Computers 3
SPEE1020 Interpersonal Communication 3

Total Credits 20

First Year - Summer Session
ASEP1104 Body Electronics 3
ASEP2110 Automatic Transmissions 3
ASEP2303 Dealer Work Experience III 5
ENGL1150 Composition I 3

Total Credits 14

Second Year - First Semester
ASEP2111 Engines 3
ASEP2209 Driveline and Four-Wheel Drive 3
ASEP1204 Dealer Work Experience IV 8
PHIL1200 Critical Thinking 3

Total Credits 17

Second Year - Second Semester
ASEP1108 Brake Systems 3
ASEP1205 Dealer Work Experience V 8
ASEP1212 Advanced Diagnostics/New Model Update 1
ASEP2107 Steering and Suspension 2
SOCY1010 Marriage and Family 3

Total Credits 17

TOTAL PROGRAM REQUIREMENTS 87

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.
HEAVY CONSTRUCTION EQUIPMENT TECHNOLOGY

Delivery: Daytime Classes
Start: Fall Semester, Full-Time
Location: Rosemount Campus

Major Description
Coursework prepares students to succeed as well-trained, mechanically minded, hard-working mechanics with heavy equipment dealers and contractors. Instruction involves classroom theory, mock-up demonstrations and repair of customer-owned heavy equipment. Making repairs on actual equipment is vital to skill development. Mechanics already in the field can update their knowledge by registering for specific courses.

Work Environment
Heavy equipment dealers and earth-moving contractors are top employers. Jobs are also available with mining and logging companies. Most mechanics work in indoor shops, but experienced field service technicians travel to job sites to perform repairs.

Potential Job Titles
- Mobile Heavy Equipment Mechanic
- Construction Equipment Overhauler
- Caterpillar Mechanic
- Construction Equipment Mechanic
- Machine Overhauler
- Field Service Technician

Salary Data
- Average Wage: $25.37/hour
- Top earners: $31.85/hour

HEAVY CONSTRUCTION EQUIPMENT TECHNOLOGY - A.A.S. DEGREE
Completion of this degree will also satisfy the requirements for the Advanced Caterpillar Technology A.A.S. degree, which prepares students for a challenging career with a focus on the Caterpillar product line.

First Year - First Semester
- HCEM1101 General Shop Mechanics - Introduction 2
- HCEM1110 Welding and Flame Cutting 2
- HCEM1132 Heavy Duty Electrical 3
- HCEM1140 Diesel Engine Overhaul I 4
- HCEM1160 Specialized Lab I 3
- SPEE1020 Interpersonal Communication 3
- Total Credits 17

First Year - Second Semester
- HCEM1234 Heavy Duty Electronics 3
- HCEM1246 Diesel Engine Overhaul II 3
- HCEM1250 Brakes 2
- HCEM1256 Diesel Engine Tune-up 3
- HCEM1261 Specialized Lab II-A.A.S. 2
- ENGL1150 Composition I 3
- General Education Elective** 3
- Total Credits 19

Second Year - First Semester
- HCEM2265 Differentials 2
- HCEM2115 Transmissions 4
- HCEM2135 Hydraulics I 3
- HCEM2238 Hydraulics II 3
- HCEM2176 Specialized Lab III-A.A.S. 2
- General Education Elective** 4
- Total Credits 18

Second Year - Second Semester
- HCEM2225 Track Drive Systems 3
- HCEM2245 Hydrostatic Systems 3
- HCEM2255 Steering Systems 3
- HCEM2280 Climate Control 2
- General Education Elective (MnTC Goal 3 or 4)** 4
- General Education Elective** 3
- Total Credits 18

TOTAL PROGRAM REQUIREMENTS 72

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
# HEAVY CONSTRUCTION EQUIPMENT TECHNOLOGY - DIPLOMA

**First Year - First Semester**
- HCEM1101 General Shop Mechanics - Introduction 2
- HCEM1110 Welding and Flame Cutting 2
- HCEM1132 Heavy Duty Electrical 3
- HCEM1140 Diesel Engine Overhaul I 4
- HCEM1160 Specialized Lab I 3
- SPEE1020 Interpersonal Communication 3

Total Credits 17

**First Year - Second Semester**
- HCEM1234 Heavy Duty Electronics 3
- HCEM1246 Diesel Engine Overhaul II 3
- HCEM1250 Brakes 2
- HCEM1256 Diesel Engine Tune-up 3
- HCEM1261 Specialized Lab II-A.A.S. 2
- ENGL1150 Composition I (or ENGL1000) 3

Total Credits 16

**Second Year - First Semester**
- HCEM2115 Transmissions 4
- HCEM2135 Hydraulics I 3
- HCEM2238 Hydraulics II 3
- HCEM2176 Specialized Lab III-A.A.S. 2
- HCEM2265 Differentials 2
- General Education Elective** 3

Total Credits 17

**Second Year - Second Semester**
- HCEM2145 Hydrostatic Systems 3
- HCEM2225 Track Drive Systems 3
- HCEM2255 Steering Systems 3
- HCEM2280 Climate Control 2
- Technical Elective* 3

Total Credits 14

**TOTAL PROGRAM REQUIREMENTS** 64

*This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.*

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# HEAVY CONSTRUCTION EQUIPMENT MAINTENANCE - CERTIFICATE

**First Year - First Semester**
- HCEM1101 General Shop Mechanics - Introduction 2
- HCEM1110 Welding and Flame Cutting 2
- HCEM1132 Heavy Duty Electrical 3
- HCEM1140 Diesel Engine Overhaul I 4
- HCEM1160 Specialized Lab I 3

Total Credits 14

**First Year - Second Semester**
- HCEM1234 Heavy Duty Electronics 3
- HCEM1246 Diesel Engine Overhaul II 3
- HCEM1250 Brakes 2
- HCEM1256 Diesel Engine Tune-up 3
- HCEM1260 Specialized Lab II 3

Total Credits 14

**TOTAL PROGRAM REQUIREMENTS** 28

*This is a sample course sequence resulting in a certificate. Please consult your program advisor regarding your academic plans.*

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* Technical Elective - Student must choose between HCEM2279 Specialized Lab IV 1-3 credits and/or HCEM2280 Climate Control 2 credits.

** Select one of the following General Education electives: SPEE1020, COML1400 or ENGL1150.
HEAVY DUTY TRUCK TECHNOLOGY

Major Description
Students learn all aspects of heavy-duty truck repair and maintenance. The program focuses on large trucks, typically class 7 and 8. Areas of instruction include electrical and electronic systems, steering/alignment, foundation brakes, air brakes and anti-lock brake systems. Students perform diesel engine troubleshooting, overhauls and tune-ups on both mechanical and electronic engines. Clutch, transmission, drive axle repair and overhaul are taught along with welding instruction and preventive maintenance and HVAC. Students will be given the opportunity to obtain a commercial drivers license (CDL) and become a state of MN certified commercial vehicle inspector.

Work Environment
Technicians generally work a standard 40-hour week in well-lighted and well-ventilated shops. Truck fleet companies, dealerships and truck repair shops are major employers.

Potential Job Titles
- Diesel Mechanic
- Diesel Technician
- Fleet Mechanic
- Heavy Duty Mechanic
- Truck Engine Technician
- Transportation Mechanic

Salary Data
- Average Wage: $22.51/hour
- Top earners: $30.16/hour

HEAVY DUTY TRUCK TECHNOLOGY – A.A.S. DEGREE

First Year - First Semester
- HDTT1100 Truck Technology Fundamentals 4
- HDTT1103 Air Brake Systems 6
- HDTT1106 Welding Procedures 2
- HDTT1109 Fluid Power Systems 2
- ENGL1150 Composition I 3
- Total Credits 17

First Year - Second Semester
- HDTT1212 Preventive Maintenance 4
- HDTT1215 Suspensions and Steering Systems 4
- HDTT1218 Electrical Systems 4
- HDTT1222 Truck A/C 2
- SPEE1020 Interpersonal Communication 3
- General Education Elective** 3
- Total Credits 20

Second Year - First Semester
- HDTT2101 Drive Train I 6
- HDTT2104 Drive Train II 4
- HDTT2107 Diesel Fundamentals 3
- HDTT2110 Diesel Fuel Systems 1
- General Education Elective (MnTC Goal 3 or 4)** 4
- Total Credits 18

Second Year - Second Semester
- HDTT2213 Diesel Engine Fundamentals 4
- HDTT2216 Diesel Electronics 3
- HDTT2970 Internship (or HDTT2222 Diesel Engine Lab) 3
- General Education Elective** 7
- Total Credits 17

TOTAL PROGRAM REQUIREMENTS 72

This is a sample course sequence resulting in an A.A.S. degree. Please consult your program advisor regarding your academic plans.

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas.
# Heavy Duty Truck Technology – Diploma

**First Year - First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>HDTT1100</td>
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<td>HDTT1103</td>
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<td>HDTT1106</td>
<td>Welding Procedures</td>
<td>2</td>
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<td>HDTT1109</td>
<td>Fluid Power Systems</td>
<td>2</td>
</tr>
<tr>
<td>COML1400</td>
<td>Introduction to Computers</td>
<td>3</td>
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</tbody>
</table>

**Total Credits**: 17

**First Year - Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<td>HDTT1215</td>
<td>Suspensions and Steering Systems</td>
<td>4</td>
</tr>
<tr>
<td>HDTT1218</td>
<td>Electrical Systems</td>
<td>4</td>
</tr>
<tr>
<td>HDTT1222</td>
<td>Truck A/C</td>
<td>2</td>
</tr>
<tr>
<td>SPEE1020</td>
<td>Interpersonal Communication</td>
<td>3</td>
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**Total Credits**: 17

**Second Year - First Semester**

<table>
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<tr>
<th>Course Code</th>
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<tr>
<td>HDTT2101</td>
<td>Drive Train I</td>
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<tr>
<td>HDTT2104</td>
<td>Drive Train II</td>
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<tr>
<td>HDTT2107</td>
<td>Diesel Fundamentals</td>
<td>3</td>
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<tr>
<td>HDTT2110</td>
<td>Diesel Fuel Systems</td>
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<tr>
<td>ENGL1150</td>
<td>Composition I (or ENGL1000)</td>
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</table>

**Total Credits**: 17

**Second Year - Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HDTT2213</td>
<td>Diesel Engine Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>HDTT2216</td>
<td>Diesel Electronics</td>
<td>3</td>
</tr>
<tr>
<td>HDTT2970</td>
<td>Internship (or HDTT2222 Diesel Engine Lab)</td>
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</tr>
</tbody>
</table>

**Total Credits**: 13

**Total Program Requirements**: 64

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# Truck Fleet Maintenance – Certificate

**First Year - First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
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<td>Truck Technology Fundamentals</td>
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<tr>
<td>HDTT1103</td>
<td>Air Brake Systems</td>
<td>6</td>
</tr>
<tr>
<td>HDTT1106</td>
<td>Welding Procedures</td>
<td>2</td>
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<tr>
<td>HDTT1109</td>
<td>Fluid Power Systems</td>
<td>2</td>
</tr>
<tr>
<td>COML1400</td>
<td>Introduction to Computers</td>
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</table>

**Total Credits**: 17

**First Year - Second Semester**

<table>
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<tr>
<th>Course Code</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDTT1212</td>
<td>Preventive Maintenance</td>
<td>4</td>
</tr>
<tr>
<td>HDTT1215</td>
<td>Suspensions and Steering Systems</td>
<td>4</td>
</tr>
<tr>
<td>HDTT1218</td>
<td>Electrical Systems</td>
<td>4</td>
</tr>
<tr>
<td>HDTT1222</td>
<td>Truck A/C</td>
<td>2</td>
</tr>
</tbody>
</table>

**Total Credits**: 14

**Total Program Requirements**: 31

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This is a sample course sequence resulting in a diploma. Please consult your program advisor regarding your academic plans.

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This is a sample course sequence resulting in a certificate. Please consult your program advisor regarding your academic plans.
RAILROAD CONDUCTOR TECHNOLOGY

Delivery: Daytime Classes
Start: January, March, May or August (7 weeks), Full-Time
Location: Rosemount Campus

Major Description
This program prepares students to serve as railroad conductors in the railway industry, which is critical to our nation’s livelihood. Retirement rates of current conductors promise excellent job opportunities. DCTC formed partnerships with Canadian Pacific Railway, Union Pacific Railroad and many other regional and short lines to develop a curriculum that puts graduates on the fast track to employment in the industry.

Work Environment
Railroad conductors oversee train routes, movements and car switching through a range of duties, including the relay of signals in emergency situations. Conductors work irregular hours, including holidays, weekends, days and nights for shifts up to 12 hours. Constantly alert to changing conditions, they are trained to act safely and responsibly.

Potential Job Titles
• Train Conductor
• Locomotive Engineer
• Train Dispatcher
• Trainmaster

Salary Data
• Average Wage: $25.88/hour
• Top Earners: $31.07/hour

RAILROAD CONDUCTOR TECHNOLOGY - CERTIFICATE

15 Week Term
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>RRCC1110</td>
<td>Orientation</td>
<td>1</td>
</tr>
<tr>
<td>RRCC1120</td>
<td>Introduction to Conductor Service</td>
<td>4</td>
</tr>
<tr>
<td>RRCC1130</td>
<td>General Code of Operating Rules</td>
<td>4</td>
</tr>
<tr>
<td>RRCC1140</td>
<td>Mechanical Operations</td>
<td>2</td>
</tr>
<tr>
<td>RRCC1150</td>
<td>Conductor Duties</td>
<td>2</td>
</tr>
<tr>
<td>RRCC1160</td>
<td>Utilization of RR Equip. &amp; Safety Standards</td>
<td>2</td>
</tr>
<tr>
<td>RRCC2970</td>
<td>Railroad Conductor Internship</td>
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<td><strong>Total Credits</strong></td>
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<td><strong>16</strong></td>
</tr>
</tbody>
</table>

TOTAL PROGRAM REQUIREMENTS 16

This is a sample course sequence resulting in a certificate. Please consult your program advisor regarding your academic plans.
PHILOSOPHY OF GENERAL EDUCATION
Dakota County Technical College incorporates General Education into its curriculum because it firmly believes that higher education involves breadth as well as depth of study and because General Education also achieves an important goal of the college’s mission. This goal states: This education will empower individuals to obtain and retain employment, enhance their opportunities for career advancement, and furnish a supportive environment in which they can develop the knowledge, skills, and attitudes necessary to succeed in a global economy.

OUTCOME STATEMENT
General Education is a requirement of all programs of 45 or more semester credits in length and is an integral part of the formal technical or professional preparation of students. This “general” education provides the kind of intellectual concepts and common knowledge that is expected of an educated person.

DELIVERY OF COURSES
Traditional: DCTC offers a variety of day and evening transferable general education courses in the classroom.

Online: DCTC offers transferable general education courses online for those that need flexibility.

Flextime Lab: DCTC offers self-motivated students the opportunity to take COML 1400 Introduction to Computers through the Flextime Lab in the Instructional Technology Center.

Weekend Colleges: DCTC offers some weekend courses in a compressed format for three to eight weekends.

For a current schedule of course offering, visit, http://dctc.edu/go/courses.
Contact Us

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“The roots of education are bitter, but the fruit is sweet.”
— Aristotle —
**A.S. DEGREE REQUIREMENTS**

An Associate in Science degree requires a minimum of 30 semester credits of general education as outlined below. See your advisor or program page in this catalog for program specific requirements.

### REQUIRED COURSES

<table>
<thead>
<tr>
<th>Category</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>ENGL1150</td>
<td>3</td>
</tr>
<tr>
<td>Human Diversity</td>
<td>SPEE1020</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics</td>
<td>MATS</td>
<td>3-4</td>
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<tr>
<td>Science</td>
<td>BIOL</td>
<td>3-4</td>
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<td>CHEM</td>
<td>4</td>
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<td></td>
<td>PHYS</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Credits** 12-14

### ELECTIVE COURSES

Students must complete a minimum of 13-15 elective credits from at least two of the following Goal Areas listed on the following Minnesota Transfer Curriculum pages:

- Goal 2: Critical Thinking
- Goal 5: History and the Social and Behavioral Sciences
- Goal 6: Humanities and Fine Arts
- Goal 8: Global Perspective
- Goal 9: Ethical and Civic Responsibility
- Goal 10: People and the Environment

(required MTC course may be used as an elective when all MTC Goals are met)

**Total Credits** 16-18

**TOTAL REQUIREMENTS** 30

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**A.A.S. DEGREE REQUIREMENTS**

An Associate in Applied Science degree typically requires 20 credits of general education as outlined below. See the program page in this catalog for program specific requirements.

### REQUIRED COURSES

<table>
<thead>
<tr>
<th>Category</th>
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</tr>
</thead>
<tbody>
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<td>SPEE1020</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics or Science</td>
<td>MATS</td>
<td>3-4</td>
</tr>
<tr>
<td></td>
<td>BIOL</td>
<td>3-4</td>
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<tr>
<td></td>
<td>CHEM</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>PHYS</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Credits** 9-10

### ELECTIVE COURSES

Students may be required to complete additional credits beyond what is listed above. Choose from the courses listed on the following Minnesota Transfer Curriculum pages:

- ARTS: Any Arts course
- BIOL: Any Biology course
- COML: 1400
- COMM: Any Communications course
- ECON: Any Economics course
- ENGL: Any English course 1200 and above
- HIST: Any History course
- HUMA: Any Humanities course
- INTS*: 1000, 1010, or 1040
- PHED*: Any PHED course
- PHIL: Any Philosophy course
- POLS: Any Political Science course
- PSYC: Any Psychology course
- SOCY: Any Sociology course
- SPEE: Any Speech course

**Total Credits** 10-11

* A maximum of 2 credits from these courses combined in any manner may count toward A.A.S. degrees requiring 20 or more general education credits.
DIPLOMA REQUIREMENTS

For students enrolled in diploma programs over 45 credits in length, there are typically nine credits of required general education courses to complete as outlined below. See your advisor or program page in this catalog for program specific requirements.

REQUIRED COURSES

Communication
ENGL1150  Composition I  3

Human Diversity
SPEE1020  Interpersonal Communication  3

General Education Elective  3

Total Credits  9

TOTAL REQUIREMENTS  9

Please note:

Practical Nursing program requires 20 semester credits of general education courses. See page 81 for details.

The following diploma programs may substitute ENGL1000 for ENGL1150 (confirm with your advisor before taking):

Accounting
Applied Visual Arts
Auto Body Collision Technology
Automotive Technician
Electrical Construction
Electrical Lineworker
Electronic Publishing
Graphic Design Technology
Heavy Construction Equipment Mechanic
Heavy Duty Truck Technology
Landscape/Horticulture
Marketing Design Specialist
Property Management

MINNESOTA TRANSFER CURRICULUM

The Minnesota Transfer Curriculum (MnTC) is the format in which general education is accomplished within the public two- and four-year colleges and universities in Minnesota. The MnTC defines a common curriculum format for general education. Completion of a defined MnTC course(s) at one institution enables a student to receive credit for lower-division general education MnTC coursework upon admission to other MnSCU colleges and universities and the University of Minnesota.

DCTC provides general education in the MnTC format and accepts MnTC courses from other MnSCU colleges and universities and from the University of Minnesota campuses.

Students who complete the entire general education transfer curriculum have shown competency in 10 goal areas. DCTC offers courses that meet all of the 10 goal areas. Students transferring these courses to other colleges transfer on a course-by-course basis. Courses approved for the Minnesota Transfer Curriculum are identified in DCTC publications by the MnTC goal number(s).

Minnesota Transfer Curriculum Completion

Completion of the Minnesota Transfer Curriculum (MnTC) may require additional courses beyond those required for the A.S., A.A.S., or diploma. If the intent is to transfer to another college, it is advisable to contact the transfer college for course selection recommendations and transfer admission process information. If a transfer college has not yet been identified, then use the Minnesota Transfer Curriculum courses listed on the following pages as a guide for course selection.

Successful completion of at least 40 credits within the accepted 10 goal areas, as outlined below, constitutes completion of the Minnesota Transfer Curriculum at DCTC. The goal area completion requirement is listed in italic text after the goal area descriptive paragraph.

COMMUNICATIONS (GOAL 1)

To develop writers and speakers who use the English language effectively and who read, write, speak and listen critically. As a base, all students should complete introductory communication requirements early in their collegiate studies. MnTC completion requires three courses, one must be ENGL1100, and one SPEE.

ENGL1150  Composition I  3 cr.
ENGL1200  Technical Writing  3 cr.
ENGL2000  English Composition II  3 cr.
SPEE1015  Fundamentals of Public Speaking  3 cr.
SPEE1042  Small Group Communication  3 cr.
SPEE1050  Nonverbal Communication  2 cr.
CRITICAL THINKING (GOAL 2)

Students will be able to gather and use factual information to make logical assumptions, interpretations or connections. Critical thinking will be taught and used throughout the general education and technical curriculum to develop students’ awareness of their own thinking and problem-solving procedures. This goal can be met by completing Goal 1 and completing the technical program.

PHIL1200 Critical Thinking 3 cr.

NATURAL SCIENCES (GOAL 3)

To improve students’ understanding of natural science principles and of the methods of scientific inquiry, i.e., the ways in which scientists investigate natural science phenomena. By studying the problems that engage today’s scientists, students learn to appreciate the importance of science in their lives and to understand the value of a scientific perspective. MnTC Completion requires two courses of two different disciplines; at least one must be a lab course.

LAB SCIENCES:

BIOL1310 Intro to Anatomy & Physiology 4 cr.
BIOL1400 Ecology Field Studies 4 cr.
BIOL1500 General Biology 4 cr.
BIOL1600 Microbiology 4 cr.
BIOL2000 Anatomy & Physiology I 4 cr.
BIOL2010 Anatomy & Physiology II 4 cr.
CHEM1500 Introduction to Chemistry 4 cr.
PHYS1100 College Physics I 4 cr.

NON-LAB SCIENCES:

BIOL1110 Environmental Science 3 cr.
BIOL1200 Minnesota Nature Study 3 cr.
BIOL1200 Biology and Society 3 cr.

MATHEMATICAL/LOGICAL REASONING (GOAL 4)

To increase students’ knowledge about mathematical and logical modes of thinking. This will enable students to appreciate the breadth of applications of mathematics, evaluate arguments, and detect fallacious reasoning. MnTC completion requires one course that is at least three credits.

MATS1200 Concepts of Mathematics 3 cr.
MATS1251 Statistics 4 cr.
MATS1300 College Algebra 4 cr.
MATS1350 Math for Liberal Arts 4 cr.

HISTORY AND THE SOCIAL AND BEHAVIORAL SCIENCES (GOAL 5)

To increase students’ knowledge of how historians and social and behavioral scientists discover, describe, and explain the behaviors and interactions among individuals, groups, institutions, events, and ideas. Such knowledge will better equip students to understand themselves and the roles they play in addressing the issues facing humanity. MnTC completion requires three courses from at least two disciplines.

ECON1100 Principles of Microeconomics 3 cr.
ECON1200 Principles of Macroeconomics 3 cr.
HIST1100 History of United States to 1877 4 cr.
HIST1200 History of US from 1877 to Present 4 cr.
HIST1300 World History 4 cr.
HIST1400 American Environmental History 3 cr.
HIST1450 The History of Minnesota 3 cr.
HIST1500 History of Western Civilization 3 cr.
POLS1000 Introduction to Political Science 3 cr.
PSYC1100 General Psychology 3 cr.
PSYC1200 Abnormal Psychology 3 cr.
PSYC1300 Child/Adolescent Psychology 3 cr.
PSYC1350 Lifespan Development 4 cr.
PSYC1400 Adult/Geriatric Psychology 2 cr.
PSYC1450 Death & Dying 2 cr.
PSYC1600 Human Sexuality 2 cr.
SOCY1010 Marriage and Family 3 cr.
SOCY1110 Introduction to Sociology 3 cr.
SOCY1150 Race and Gender 2 cr.
SOCY1210 Social Issues in a Changing World 3 cr.
SOCY1250 Juvenile Delinquency 2 cr.
SOCY1300 Introduction to Anthropology 2 cr.

HUMANITIES AND FINE ARTS (GOAL 6)

To expand students’ knowledge of the human condition and human cultures, especially in relation to behavior, ideas and values expressed in works of human imagination and thought. Students will engage in critical analysis, form aesthetic judgments, and develop an appreciation of the arts and humanities. MnTC completion requires two courses from two different disciplines.

ARTS1300 History of Architecture 4 cr.
ENGL1300 Intro to Creative Writing 3 cr.
ENGL1400 American Short Story 3 cr.
ENGL1550 Intro to Literature 3 cr.
ENGL1600 Film Studies 3 cr.
ENGL1650 Greek Mythology 4 cr.
ENGL1700 Selected Works in Literature 3 cr.
ENGL1750 Fantasy/Science Fiction Literature 3 cr.
ENGL1800 Mystery & Detective Literature 3 cr.
ENGL1900 Creative Writing Workshop 3 cr.
ENGL2000 English Composition II 3 cr.
HUMA1100 Introduction to the Humanities 4 cr.
PHIL1300 Introduction to Philosophy 3 cr.
PHIL1350 Medical Ethics 3 cr.
PHIL1400 World Religions 3 cr.
HUMAN DIVERSITY (GOAL 7)
To increase students’ understanding of individual and group differences (e.g., race, gender, class) and their knowledge of the traditions and values of various groups in the United States. Students should be able to evaluate the United States’ historical and contemporary responses to group differences. MnTC completion requires one course.

- SOCY1150 Race and Gender 2 cr.
- SPEE1020 Interpersonal Communication 3 cr.
- SPEE1030 Intercultural Communication 3 cr.

GLOBAL PERSPECTIVE (GOAL 8)
To increase students’ understanding of the growing interdependence of nations and peoples and develop their ability to apply a comparative perspective to cross-cultural social, economic and political experiences. MnTC completion requires one course.

- COMM1221 American Sign Language-Level I 3 cr.
- HIST1300 World History 4 cr.
- PHIL1400 World Religions 3 cr.
- SOCY1210 Social Issues in a Changing World 3 cr.
- SPAN1100 Beginning Spanish I 4 cr.
- SPAN1200 Beginning Spanish II 4 cr.
- SPEE1030 Intercultural Communication 3 cr.

ETHICAL AND CIVIC RESPONSIBILITY (GOAL 9)
To develop students’ capacity to identify, discuss, and reflect upon the ethical dimensions of political, social, and personal life and to understand the ways in which they can exercise responsible and productive citizenship. MnTC completion requires one course.

- PHIL1100 Ethics 3 cr.
- PHIL1300 Introduction to Philosophy 3 cr.
- PHIL1350 Medical Ethics 3 cr.

PEOPLE AND THE ENVIRONMENT (GOAL 10)
To improve students’ understanding of today’s complex environmental challenges. Students will examine the inter-relatedness of human society and the natural environment. Knowledge of both bio-physical principles and socio-cultural systems is the foundation for integrative and critical thinking about environmental issues. MnTC completion requires one course.

- BIOL1110 Environmental Science 3 cr.
- BIOL1200 Biology and Society 3 cr.
- HIST1400 American Environmental History 3 cr.
- SOCY1300 Introduction to Anthropology 3 cr.

COMPUTER LITERACY/COMPUTERS & SOCIETY
Students will be able to explain the underlying concepts of computer technology and use software applications as productivity tools. This emphasis area is not part of the Minnesota Transfer Curriculum. COML1400 may be used as an elective when MnTC Goals are met.

- COML1400 Introduction to Computers 3 cr.
- COSO1030 Computer and Society Basics 1 cr.
- COSO1050 Computers and Society Essentials 2 cr.

DEVELOPMENTAL EDUCATION
- General Education at the developmental level is designed to prepare students for transfer-level coursework and to enhance success within technical training programs.
- Developmental courses often help students improve test scores in order to qualify for entry into general education or technical coursework.
- Developmental course numbers begin with a zero. They cannot be used to satisfy graduation requirements.

Communications
- ENGL0118 Basic English and Writing Review 3 cr.
- ENGL0130 English Essentials 3 cr.
- ENGL0114 College Reading I 3 cr.
- ENGL0215 College Reading II 3 cr.
- ENGL0123 Medical Reading and Study Skills 4 cr.

English for Speakers of Other Languages
- ESOL0030 ESOL Listening and Speaking I 4 cr.
- ESOL0032 ESOL Reading I 4 cr.
- ESOL0035 ESOL Writing and Speaking II 4 cr.
- ESOL0040 ESOL Listening and Speaking II 4 cr.
- ESOL0042 ESOL Reading II 4 cr.
- ESOL0045 ESOL Writing and Grammar I 4 cr.

Mathematical/Logic Reasoning
- MATS0200 Basic Mathematics 3 cr.
- MATS0305 Introduction to Algebra 4 cr.
- MATS0400 Introduction to Geometry 1 cr.
- MATS0500 Introduction to Trigonometry 1 cr.
- MATS0600 Intermediate Algebra 4 cr.
ACCOUNTING

ACCT1000  Principles of Accounting I  4 cr.
This course covers the fundamental accounting concepts and principles that are used in a business environment. It serves as the introductory course to financial accounting as it relates to accrual accounting. **Articulated**

ACCT1003  Principles of Accounting II  4 cr.
This course provides instruction for the analysis and recording of transactions relating to partnerships and corporations in both merchandising and manufacturing environments. Prerequisites: ACCT1000.

ACCT1005  Principles of Bookkeeping  2 cr.
This course is an introduction to basic accounting procedures, including analyzing business transactions, recording transactions in the general journal, preparing financial statements, handling cash and completing the accounting cycle for non-accounting majors.

ACCT1100  Business Law and Ethics  3 cr.
This course is an introductory course in the principles of law as they apply to citizens and business. **Articulated**

ACCT1106  Accounting Mathematics  3 cr.
This course includes a review of the basics of arithmetic and algebra. The focus is on business and financial operations concepts with a strong emphasis on problem solving.

ACCT1226  Payroll Accounting  3 cr.
This course covers the various state and federal laws pertaining to the computation and payment of salaries and wages. Topics include preparation of employment records, payroll registers, employee earnings records, and state and federal reports. Prerequisites: ACCT1000.

ACCT1236  Business Payroll  2 cr.
This course covers the various state and federal laws pertaining to the computation and payment of salaries and wages. Topics include preparation of employment records, payroll registers, employee earnings records, and state and federal reports. Prerequisites: ACCT1000.

ACCT1306  Spreadsheets  3 cr.
This course covers the use of a computer spreadsheet program for accounting applications. Topics include managing multiple-sheet spreadsheets, creating and using charts and graphs, creating complex formulas and creating and printing reports. Prerequisites: COML1400.

ACCT1406  Income Tax  4 cr.
This course provides a practical explanation of the Internal Revenue Code as it applies to individuals and businesses. Tax forms are an integral part of this course.

ACCT2000  Intermediate Accounting I  4 cr.
This course is part one of a two-part course of study of accounting theory and concepts with an analysis of the influence on financial accounting by various boards, associations, and governmental agencies. Topics include the income statement, balance sheet, statement of cash flows, and the study of cash, marketable securities, notes and accounts receivable and plant and intangible assets. Prerequisites: ACCT1003.

ACCT2003  Intermediate Accounting II  4 cr.
This course is part two of a two-part course of study of accounting theory and concepts. Topics include long-term investments, current and contingent liabilities, bonds payable, leases, pension plans, owner’s equity, and accounting for income taxes and earnings per share. Prerequisites: ACCT2000.

ACCT2100  Cost Accounting I  4 cr.
This course covers accounting for materials, labor and factory overhead in a manufacturing entity. Other topics include the job order cost system, the process cost system and accounting for scrap, spoiled goods, by-products and joint products. Prerequisites: ACCT1000.

ACCT2103  Cost Accounting II  4 cr.
Topics include cost-volume-profit relationships, differential costs and revenues, budgeting, standard costing, and cost analysis. Also included are quantitative techniques used for inventory control. Prerequisites: ACCT2100.

ACCT2200  Accounting Computer Applications I  3 cr.
This course is an introduction to computerized accounting applications. Topics include general ledger, payroll, accounts receivable, accounts payable and inventory. Prerequisites: ACCT1000 and COML1400.

ACCT2203  Accounting Computer Applications II  3 cr.
This course involves the use of a commercial accounting software package to complete an accounting simulation. Topics include depreciation and fixed assets. Prerequisites: ACCT2200.

ACCT2306  Auditing  3 cr.
This course is the fundamental course in external auditing. The course will be a practical application of external auditing as it applies to public accounting. Prerequisites: ACCT1000.

ACCT2400  Personal Financial Management  2 cr.
This course covers the major aspects of personal finance including income, taxes, credit, insurance, retirement and estate planning.

ARCHITECTURAL TECHNOLOGY

ARCT1100  Architectural Studio I  8 cr.
This course will introduce the beginning architectural student to wood-framed and masonry structures, including basic manual drafting techniques, zoning and building code sources, fundamental building design concepts and current building technology principles. Students will prepare architectural drawings of residential and light commercial projects in a simulated professional design office setting.

ARCT1103  Building Technology I  3 cr.
This course will introduce the beginning architectural technology student to the characteristics and properties of common building materials: wood, masonry, concrete and metals. Fundamentals of current building technology principles will be learned in association with studio projects. Students will research building technology principles from library resources, manufacturer’s catalogs and professionally prepared construction documents. Prerequisites: Concurrent enrollment in ARCT1100.

ARCT1107  CAD I  3 cr.
This course will introduce the beginning architectural technology student to computer-aided design programs currently being used in professional design offices. Fundamental concepts, commands, and tools of a CAD environment will be taught with a hands-on approach to learning. Students will complete self-paced drafting exercises. Prerequisites: A working knowledge of Windows Operating System or instructor approval. **Articulated**

ARCT1200  Architectural Studio II  8 cr.
Students prepare design construction documents for a small-scale commercial building in a simulated professional design office. Students learn to integrate building codes, ADA, and structural systems into their designs. Prerequisites: ARCT1100, and concurrent enrollment in ARCT1203.
ARCT1203 Building Technology II 3 cr.
Various commercial building codes will be presented and analyzed. The student will do a building codes research project. The completed research will be documented and integrated into design projects. Prerequisites: ARCT1100 and ARCT1103, and concurrent enrollment in ARCT1200.

ARCT1207 CAD II 3 cr.
This course builds on the student’s knowledge of AutoCAD. The student will use intermediate AutoCAD techniques to develop construction drawings to supplement the work in ARCT 1200. Prerequisites: ARCT1107.

ARCT1300 Introduction to SketchUp Modeling Software 3 cr.
This course will introduce the motivated student to 3 Dimensional modeling software currently being used in professional design offices. Fundamental concepts, commands, and tools of the SketchUp will be taught in an enhanced on-line learning environment. There will be two on site formal lectures introducing basic concepts and ten on-line sessions. Students will submit required projects, questions and comments, to D2L server. Students will complete self-paced tutorials available at the following web address: http://www.sketchup.com Prerequisites: The student will have a working knowledge of Mac OS and/or Windows XP. It is recommended the student have a background in either drafting, art or computer graphics.

ARCT1400 Residential Planning and Design 4 cr.
This course will introduce the interested student to the fundamentals of residential design. The course curriculum is intended to guide the learner toward a basic understanding of Plot Plan layout, Floor Plan development and current Architectural styles.

ARCT1425 Architectural Drawings and Methods 4 cr.
This course will introduce the interested student to the fundamentals of Architectural drawings. The course curriculum is intended to guide the learner toward a basic understanding of Sketching to Scale, Orthographic Images and required project Drawings for the purposes of design and construction.

ARCT1450 Wood Frame Building Technologies 4 cr.
This course will introduce the interested student to the fundamentals of Wood Frame construction. The course curriculum is intended to guide the learner toward a basic understanding of Foundation Construction, Wood Frame assemblies and conventional building systems.

ARCT1475 Residential Construction and Costs 4 cr.
This course will introduce the interested students to the construction process for residential structures. The course curriculum is intended to guide the learner toward a basic understanding of contracting, cost estimating and building official inspections.

ARCT2100 Architectural Studio III 8 cr.
Students prepare architectural drawings for a small-scale commercial building. This course builds on the students’ architectural technology skills as they prepare projects for their portfolios. Prerequisites: ARCT1200, and concurrent enrollment in ARCT2103.

ARCT2103 Building Technology III 3 cr.
This course will introduce the student to acoustics, electrical/lighting, plumbing, HVAC, insulation and vapor barriers, and fire protection. The student will integrate research on various building systems into design projects. Prerequisites: ARCT1203, and concurrent enrollment in ARCT2100.

ARCT2107 CAD III 3 cr.
This course builds on the student’s knowledge of AutoCAD. The student will use advanced AutoCAD techniques to develop construction drawings to supplement the work in ARCT 2100. Prerequisites: ARCT1207 or equivalent.

ARCT2200 Architectural Studio IV 5 cr.
This course provides an opportunity for the student to demonstrate previously learned architectural technology skills by independently preparing computer-aided design working drawings of a commercial project elevation detail sheet. Students will incorporate the completed drawings into their portfolios for internship interviews with future employers. Prerequisites: ARCT2100.

ARCT2210 Architectural Technology Portfolio 2 cr.
This class hands-on course will concentrate on preparing the student to enter a career in architectural technology. Students will use software skills to refine and enhance completed projects for use in their portfolios. Students will receive guidance in various display options and presentation methods. Projects for inclusion in the portfolio will include sketches, renderings, and technical CAD drawings. Upon completion the student will have an industry-ready portfolio in preparation for entering the job market. As a part of this course, students are required to participate in a formal portfolio showing near the end of their final semester of school. Prerequisites: Students must be in their final semester of the Architectural Technology program.

ARTS

ARTS1000 Visual Communications 3 cr.
We live in a world that often places us in a position of visual overload. The ease with which materials can be produced and shared with a global audience means that in our daily lives we are often overwhelmed by visual information. It is important that we learn to read, interpret and use images for communication purposes. It is also imperative that we explore how to place visual work in a context that allows us to understand the social, political and cultural implications of various visual productions. This course is an introduction about the theories and hands-on aspects of visual communications. We will explore both the production and consumption of visual images.

ARTS1100 History of Photography 3 cr.
This course will allow students to explore photography and its affects on culture by examining the origins of the medium. While it may seem that photography belongs only to the twentieth century, students will learn that the origins of the first camera date back hundreds of years. Early photographers were often “frustrated painters,” and affected strongly by art and art history movements. This class then will begin with a review of the camera’s beginnings and of the artistic cultural milieu that helped to bring the medium into adulthood in the twentieth century.

ARTS1200 The Creative Process 3 cr.
Much of the thinking learned in school and in the work environment place an emphasis on learning how to understand claims, follow or create a logical argument, figure out the answer, eliminate the incorrect paths and focus on the correct one. There is, however, another kind of thinking, centered on exploring ideas, generating possibilities, looking for many right answers rather than just the “correct” one. Both of these kinds of thinking are vital to success in the work place, yet the creative approach tends to be ignored until after the formal education is complete. In this course we will explore the creative thought process and develop systems to encourage and develop new idea generation.

ARTS1300 History of Architecture 4 cr.
This course will cover architecture from prehistory up to today, looking at examples throughout history and examining the issues that help shape them. The course will not only look at who designed the buildings, but who built them, who used them, and why. Beginning with the earliest manmade shelters and ending with issues influencing architecture today, the course will introduce students to different ways of seeing buildings and architecture as cultural artifacts emblematic of culture. Meets MnTC Goal 6.
AUTO BODY COLLISION TECHNOLOGY

ABCT1111  Collision Repair Welding I  2 cr.
This course covers welding safety, familiarization with oxyacetylene equipment and MIG welder operations.

ABCT1120  Sheet Metal Repair  5 cr.
This course covers the tools and processes used for repairing minor damage on sheet metal panels. Safe and proper use of body fillers are included in this course. Prerequisites: ABCT1111. **Articulated**

ABCT1130  Refinishing Preparation I  2 cr.
This course covers refinishing safety, refinishing equipment, masking and surface preparation procedures. Prerequisites: ABCT1120 and ABCT1142. **Articulated**

ABCT1142  Glass, Trim, and Hardware  4 cr.
This course covers the procedures for the removal and replacement of stationary glass, moveable glass and most component of a vehicle.

ABCT1150  Reconditioning and Detailing  2 cr.
This course covers various methods of vehicle cleanup and reconditioning. **Articulated**

ABCT1212  Collision Repair Welding II  2 cr.
This course covers aluminum welding, resistance type spot welding, weld bonding and the I-CAR welding qualification test. Prerequisites: ABCT1111. **Articulated**

ABCT1214  Refinishing Preparation II  3 cr.
This course covers procedures for preparation and application of undercoat systems. Panel preparation techniques are also covered. Prerequisites: ABCT1120, ABCT1130, ABCT1142.

ABCT1216  Refinishing Application  5 cr.
This course covers the application of undercoats and topcoats in refinishing. Color theory, adjustment, and blending will be covered. Prerequisites: ABCT1142, ABCT1150, ABCT1130, ABCT1214

ABCT1230  Auto Body Plastic Repair  2 cr.
This course covers the different methods of repairing automotive plastics. Prerequisites: ABCT1130, ABCT1142, ABCT1214, ABCT1216.

ABCT2100  Body Electrical  2 cr.
This course will focus on electrical troubleshooting and repair problems and procedures relating to collision electrical damage problems. It covers operation, servicing of chassis wiring, instruments, and accessories.

ABCT2102  Shop Management and Estimating  2 cr.
This course will focus on management duties related to personnel, shop flow and monetary tasks. This course will contain and require handwritten and computer driven estimation procedures and understanding of estimating terminology.

ABCT2106  Collision Damage Repair/Replacement  6 cr.
This course will focus on sheetmetal, unitized body and full frame sectioning and replacement of parts and components. Content will be based on proper methods that are approved and tested to meet O.E.M. and I-Car standards for proper structural integrity of the repair and the vehicle. Prerequisites: ABCT1111, ABCT1212, and ABCT1120.

ABCT2108  Unibody/Frame/Wheel Alignment I  4 cr.
This course will focus on unibody, full frame repair and alignment using various alignment, measuring and pulling equipment. This course will also contain wheel alignment procedures and terminology relating to collision damaged vehicles. Prerequisites: ABCT1111, ABCT1212, ABCT1120.

ABCT2212  Unibody/Frame/Wheel Alignment II  6 cr.
This course is a continuation of ABCT2108 with additional technical information and procedures. Students will be using frame repair equipment, various measuring equipment to include universal measuring, centerline gauges, and laser measuring and applying all previous training on damaged vehicle repairs. Prerequisites: ABCT1111, ABCT1212, ABCT1120, ABCT2108, ABCT2106.

ABCT2230  Body Mechanical and Air Conditioning  3 cr.
This course will focus on auto collision related minor mechanical failures. The course will also focus on typical air conditioning procedures related to auto collision such as reclaim, recharge and replace parts as result of a collision contains subject matter related to mechanical repairs as a result of a collision.

ABCT2270  Autobody Internship  3 cr.
This course is required and can be for two to five credits. The intern will perform duties related to and to include duties that were performed and learned thus far. Prerequisites: ABCT1100, ABCT1111, ABCT1120, ABCT1130, ABCT1142, ABCT1150, ABCT1212, ABCT1216, ABCT1230, ABCT2102, ABCT2230, ABCT2106, ABCT2108. **Articulated**

AUTOMOTIVE RESTORATION

ARES1000  Intro to Auto Restoration Welding/Sheet Metal  6 cr.
This course covers basic tools and techniques for the restoration of older vehicles. Topics will include: welding, rust repair, metal straightening, plastic filler application and corrosion protection.

AUTUM1001  Know Your Car  1 cr.
This course covers correct procedures for servicing vehicles, safety procedures and use of service manuals and bulletins. The course is designed for those who want to know more about their vehicles and be able to perform minor service.

AUTUM2011  Suspension, Steering & Alignment  3 cr.
This course teaches suspension systems using leaf springs, coil springs, McPherson struts, and torsion bars. Steering systems using manual and power rack and pinion, recirculating ball steering gears. Alignments angles and their relationship to vehicle handling. Prerequisites: AUTUM2100.

AUTUM2025  Brakes  3 cr.
This course includes basic principles of brakes, hydraulic system basics, disc and drum brakes, parking brakes, anti-lock brakes and power assist units. Emphasis will be placed on operation, diagnosis and repair of various types of braking systems. Prerequisites: AUTUM2100.

AUTUM2031  Differential and Four Wheel Drive  3 cr.
This course will cover the operation and proper repair procedures for current differentials used on late-model vehicles. It also covers the operation and proper repair procedures for current transfer cases and hubs in four-wheel-drive vehicles.

AUTUM2032  Manual Transaxle, Clutches, Transfer Cases and Differential  3 cr.
This course will cover the operation and proper repair procedures of current differentials, manual transmissions, transaxles, and transfer cases used on late model vehicles. It also covers the operation and proper repair procedures for locking hubs in four-wheel drive vehicles.
AUTM2100  Basic Automotive Electricity  1 cr.
This course covers basic automotive electrical theories, diagnosis, and repair procedures using various types of tools and test equipment and reference materials available in Alldata, Mitchell and your textbook.

AUTM2110  Automotive Engine Electrical Systems  3 cr.
This course covers automotive batteries, starting and charging system theories, diagnosis, and repair procedures using various types of tools and test equipment and reference materials available in Alldata, Mitchell and your textbook. Prerequisites: AUTM2100.

AUTM2115  Automotive Body Electrical Systems  3 cr.
This course covers automotive batteries, starting, and charging system theories, diagnosis, and repair procedures using various types of tools and test equipment and reference materials available in Alldata, Mitchell and your textbook. Prerequisites: AUTM2100.

AUTM2125  Engine Theory and Operation  4 cr.
This course includes general engine diagnoses, cylinder head diagnoses and repair, valve train diagnoses and repair, engine block diagnoses and repair. The class stresses how engines work and how to repair them. Prerequisites: AUTM2100.

AUTM2136  Heating, Ventilation and Air Conditioning  3 cr.
This course covers the theory, operation, and repair of modern automotive air conditioning systems. The course includes practical work on air conditioning systems such as recovering refrigerant, evacuating, component service, charging, and performance testing. Prerequisites: AUTM2100.

AUTM2141  Advanced Automotive Electronic Systems  5 cr.
This course covers advanced automotive electrical, electronic, and HVAC system diagnostic and repair procedures using various types of tools and test equipment and reference materials available in Alldata, Mitchell and your textbook. Prerequisites: AUTM2100, 2110, 2115, 2136.

AUTM2205  Advanced Driveline and Chassis Systems  5 cr.
This course includes the advanced diagnosis and electrical repairs of the driveline components. Emphasis will be placed on anti-lock brakes and traction control.

AUTM2215  Automatic Transmission/Transaxle Theory and Operation  4 cr.
This course includes basic theory of torque converters, planetary gears, clutches, bands, and hydraulics. The class stresses how automatic transmissions and transaxles work and how to repair them. Prerequisites: AUTM2100.

AUTM2225  Advanced Engine and Transmission Repair  6 cr.
This course includes advanced automatic transmission and engine diagnostic procedures. Advanced repair of automatic transmissions and engines. Prerequisites: AUTM2100, AUTM2125, AUTM2215.

AUTM2305  Fuel System Operation Diagnosis and Repair  3 cr.
This course covers the operation and servicing techniques required to diagnose and repair ignition system related concerns encountered on modern automobiles. Prerequisites: AUTM2100.

AUTM2315  Ignition System Operation, Diagnosis & Repair  3 cr.
This course covers the operation and servicing techniques required to diagnose and repair ignition system related concerns encountered on modern automobiles. Prerequisites: AUTM2100.

AUTM2321  Automotive Computers and Fuel Injection  3 cr.
This course will cover the theory and operating principles of automotive computers and throttle body and multi-port injection systems.

AUTM2325  Computer Systems Operation Diagnosis and Repair  3 cr.
This course covers the operation and servicing techniques required to diagnose and repair ignition system related concerns encountered on modern automobiles. Prerequisites: AUTM2100.

AUTM2330  Advanced Driveability  5 cr.
This course covers the operation and servicing techniques required to diagnose and repair driveability concerns encountered on modern automobiles. Live work will be stressed in this course. Prerequisites: AUTM2100, AUTM2315, AUTM2325.

BIOLOGY

BIOL1110  Environmental Science  3 cr.
This course emphasizes the fundamental concepts in ecology as they pertain to the impact of humans on the environment. It addresses such issues as the stresses placed on the biosphere by the exploitation of natural resources and energy, the creation of pollution and the disposal of waste. Meets MnTC Goals 3 & 10.

BIOL1120  Minnesota Nature Study  3 cr.
This course covers the natural habitats of Minnesota and the plants and animals that live in them. It includes such topics as our physical environment, ecology, and animal traits and behaviors such as mimicry or migration. Human interactions with these habitats and interdependence between states and countries with regard to wildlife are covered. Meets MnTC Goal 3.

BIOL1200  Biology and Society  3 cr.
This is an interdisciplinary course that explores the interaction between biology and related complex human issues. Along with gaining an understanding of biology’s more technical aspects, students in this course will also explore the historical, political, and environmental perspectives needed to understand the impacts that important biology issues have on society. Breakthroughs in genetics, stem cell propagation, cloning, and human genome project give rise to numerous ethical questions. The emergence of viral pathogens such as HIV and Ebola, the increasing prevalence of drug resistant bacteria, and the specter of anthrax and smallpox being utilized as agents of terrorism, raise daunting social and scientific questions. Addressing such issues requires both an understanding of biology and its context within our society. Meets MnTC Goals 3 & 10.

BIOL1310  Introduction to Anatomy and Physiology  4 cr.
This lecture and laboratory based course is designed for introductory study of human anatomy and physiology. It emphasizes the structure and function of the systems of the body including the skeletal, muscular, cardiovascular, respiratory, nervous, endocrine, renal, digestive, urinary, and reproductive systems. Carefully check your program requirements for acceptability of this course. It does not replace the two course sequence of anatomy and physiology required for many advanced health programs. Prerequisites: Recommended college level reading and math placement on Accuplacer. Meets MnTC Goal 3.

BIOL1400  Ecology Field Studies  4 cr.
An inquiry-based course that covers the fundamental principles of ecology, conservation, and sustainability. Students will have the opportunity to learn through laboratory, field work, and lecture activities. Topics include biodiversity, a survey of biomes, populations, interrelationships in biological communities, ecological succession, energy flow, nutrient cycling, physiological ecology, and human impacts on ecosystems. Meets MnTC Goal 3.

BIOL1500  General Biology  4 cr.
The course surveys the basic principles of biology. Units included are in cell biology, the life and diversity of plant and animals, genetics, evolution and ecology. Dissection of frog required. Prerequisites: Recommended CPT reading score over 50%. Meets MnTC Goal 3.
BIO2000 Anatomy & Physiology I 4 cr.
This two-semester sequence provides the student with the basic knowledge in anatomy and physiology of the human body. The emphasis will be on the relationship between body structure and function. Each functional system is considered in terms of its cell, tissue and organ types. Fundamental information in the areas of chemistry and physics as related to the structure and function of the body is also included. Structural systems covered include integumental, skeletal, muscular and nervous. Dissection of muscle, brain, and bone specimen is required. Prerequisites: A “C” or better in BIOL1500 or equivalent or instructor permission. Meets MnTC Goal 3.

BIO2010 Anatomy and Physiology II 4 cr.
This two-semester sequence provides the student with the basic knowledge in anatomy and physiology of the human body. The emphasis will be on the relationship between body structure and function. Each functional system is considered in terms of its cell, tissue and organ types. Fundamental information in the areas of chemistry and physics as related to the structure and function of the body is also included. Systems covered include digestive, urinary, reproductive, lymphatic, and cardiovascular. Dissection of a fetal pig is required. Prerequisites: BIO2000 or equivalent. Meets MnTC Goal 3.

BIOL2020 Microbiology 4 cr.
An introduction to Microbiology with a focus on microbe classification and biology, disease transmission, and pathogenesis, the immune response, and isolation and identification laboratory practices. Emphasis will be on microorganisms that cause local and systemic disease in humans with consideration of treatment options as well as infection control and prevention strategies. This course is intended for nursing students and other students pursuing careers in allied health fields. Prerequisites: BIO2000. Meets MnTC Goal 3.

BIOMEDICAL EQUIPMENT TECHNOLOGY

BMET1110 Introduction to Biomedical Technology 3 cr.
This course provides students with an industry overview/perspective in the biomedical technology field. In this course students will learn the relationships between equipment and patient care.

BMET1112 DC Electricity 3 cr.
This course is designed to investigate the direct current and voltage behavior of series and parallel circuits using Ohm’s and Watt’s laws. Natural and direct current electromagnetism will also be presented. Students will perform lab projects on all subject matter by use of an interactive lab network computer.

BMET1114 Wireless Communication 1 cr.
This class will study the use of wireless networks in hospitals. The technology involved in wireless medical telemetry. The designated frequencies within the radio spectrum and the potential for radio frequency interference. Also discussed will be the wireless environment, wireless LANs, cell phones, wireless planning and antenna systems plus the role of the Federal Communication Commission has in managing the radio frequency spectrum. This class is intended to be an introductory level class.

BMET1116 Solid State Electronics 5 cr.
This course will introduce students to a wide range of active solid state devices such as transistors, unijunction transistors, and silicon-controlled rectifiers. It also teaches how these devices are used in practical circuits such as amplifiers, speed controls, switching circuits, and timing circuits. The student will compute component and circuit parameters. These will then be compared with measured data. Circuits will be designed and evaluated by breadboarding and/or computer simulation software.

BMET1121 Administrative Functions 3 cr.
This course introduces students to the basic operation of hospitals; the requirements of regulatory agencies; biomedical department policies and procedures and the managing of information, work orders and vendors.

BMET1123 A.C. Electricity 3 cr.
This course introduces the principles of alternating current. Circuits will consist of resistive, capacitive and inductive devices. Ohm’s and Watt’s laws, along with Norton’s and Thevenin’s theorems will be used to simplify complex combinations of RCL circuits. Test equipment introduced includes the VOM (volt-ohm-meter), DMM (digital-multimeter), signal generator and oscilloscope. The course concludes with resonating circuits. Prerequisites: BMET1112 or equivalent.

BMET1136 Managing Customer Satisfaction in the Health Care 1 cr.
This course will consist of class lecture and practical exercises. The student will learn to differentiate between internal and external customers in the Health Care Environment. They will be able to identify good customer service when they see it. They will understand the three areas of focus for customer service improvement. Customer service issues specific to the Health Care field and technical service will be covered.

BMET1225 Biomedical Instrumentation I 4 cr.
This course studies the various technologies used in the medical care field. Areas of study will cover the use of various test equipment, performing preventative maintenance and the use of testing equipment for maintaining proper operation. Students will also learn to read schematics and following instructions in service manuals for performing test and maintenance.

BMET1231 Biomedical Instrumentation II 4 cr.
This course provides a foundation in the theory and operation of medical laboratory equipment, fiber optics, computers, radiology, nuclear medicine and ultrasound. Prerequisites: BMET1225.

BMET1241 Mechanical Systems 3 cr.
This course is designed to teach the fundamentals of hydraulics and pneumatics and basic mechanical applications. The curriculum incorporated in the system includes instruction in the mathematics component of hydraulics and pneumatics, and provides experiences in problem solving, data management, and self-directed learning.

BMET1530 Digital and Micro Processor 3 cr.
This course covers the basic and advanced digital logic used in integrated circuits and their application. Logic diagrams and analysis will be covered. Microprocessor control and feedback systems using sensor feedback will be studied. Training will be accomplished using the LabVolt system and handouts selected by the instructor. Prerequisites: BMET1112, BMET1123, BMET1116 or equivalent.

BUSINESS ENTREPRENEUR

ENTR1170 Introduction to Small Business 2 cr.
Students taking this course will learn what it takes to own, operate, and grow a small business successfully. The student will learn the personal traits and characteristics necessary to succeed in the fast-paced small business environment. This course will also examine the various ways small business can start. Some of these ways include starting a business from scratch, buying an existing business, or buying a franchise. Various case studies will be examined as to why some businesses fail, while others succeed. In addition, the student will identify their individual strengths and weaknesses and will learn which of these areas help or hinder the success of small business ownership. Although there is no way to 100% “Failure-proof” a business, the student will learn the three main secrets to launching a small business successfully.
COURSE DESCRIPTIONS

**ENTR1440 Successful Marketing Strategies for Small Business** 4 cr.
Students will be given a complete overview of all aspects of marketing for a small business. Specific topics will include research, determining the target market, developing a marketing strategy, identifying over 30 marketing tactics, and positioning. The student will be exposed to various case studies and will use these to develop a marketing strategy for a specific product or service. The student will also create a complete market plan and present that plan to the class.

**ENTR1650 Selling Strategies for the Entrepreneur** 3 cr.
The success of an entrepreneurial venture is directly related to entrepreneur’s ability to constantly and consistently sell. The student will learn the three vital aspects of small business selling including, one on one selling, presentation selling, and creating win/win negotiations. Even if the student has never sold before, they will become proficient at all aspects of the sales, presentation, and the negotiation process. The student will have the opportunity to practice multiple aspects of selling in a safe classroom environment. In addition, the student will develop specific sales strategies for their individual business and be able to “try” these strategies with other members of the class.

**ENTR1860 Business Plan Development** 3 cr.
This course will give the student all the necessary tools to create a business plan that gets results. The student will, during the course of the semester, create his or her own business plan, which is the main objective of the course. The business plan process will be broken down into five areas: vision, customers product/service, numbers, and team. Numerous business plans will be examined and good points and bad points will be examined in each. Students will also be given the opportunity to present their plans to the group in a safe setting and have them critiqued for clarity and effectiveness.

**ENTR1900 Capitalizing a Small Business** 2 cr.
This course will provide the student with the information and tools necessary to fund a small business. The student will be exposed to various methods of raising both start-up and operating capital. These methods include bank loans, SBA loans, venture financing, and grant opportunities. The student will practice presenting his or her company in preparation for presenting to bankers and investors. Prerequisites: ENTR1860 or may take courses concurrently.

**CHEMISTRY**

**CHEM1500 Introduction to Chemistry** 4 cr.
This course is a broad introduction to chemistry, its principles and applications. It is intended for the non-science major. Topics include the scientific method, atomic structure, periodic table, general properties of matter, the development of the model of the atom, basics of chemical bonding, chemical equations and their uses, acids and bases and oxidation reduction. Meets MnTC Goal 3.

**CHILD DEVELOPMENT**

**CDEV1200 Professional Relations in Early Childhood Careers** 3 cr.
This course explores career opportunities for working with children in a variety of child development programs. This course also examines job requirements, duties, regulations, issues, skills, and personal characteristics for becoming successful professionals in early childhood settings. **“Articulated”**

**CDEV1201 Professional Relations in Special Education** 3 cr.
This course will explore career opportunities for working with children in a variety of school settings. This course examines the philosophical, historical and legal foundations of special education, characteristics of learners, assessment, diagnosis and evaluation of students, current instructional content and practice, supporting the teaching and learning environment, managing student behavior and social interaction skills, communication and collaborative partnerships, professionalism and ethical practices.

**CDEV1205 CDA Professional Resources** 1 cr.
This introductory course defines the processes and procedures used in obtaining the National Child Development Associate (CDA) credential. Students will develop the Professional Resource File required by the Council for Professional Recognition.

**CDEV1206 Parent and Professional Relations** 2 cr.
This course explores a variety of topics regarding duties, regulations, issues and skills necessary to becoming an early childhood professional and in establishing a positive relationship with parents and coworkers.

**CDEV1210 Foundations of Child Development I** 3 cr.
This course provides an overview of typical and atypical child development across cultures from prenatal through school age, including physical, social, emotional, language, cognitive, aesthetic and identity/individual development. It integrates developmental theory with appropriate practices in a variety of early childhood care and education settings. **“Articulated”**

**CDEV1220 Child Safety, Health, and Nutrition** 4 cr.
This course will guide the student in obtaining skills needed to establish and maintain a physically and psychologically safe and healthy learning environment for young children. Topics include preventing illness and accidents, handling emergencies, providing health, safety and nutrition educational experiences, meeting children’s basic nutritional needs, drug/chemical abuse, child abuse and current health-related issues. (NOTE: This course does not include CPR or First Aid certification.) **“Articulated”**

**CDEV1230 Guidance and the Early Childhood Environment** 4 cr.
This course provides an exploration of the physical and social environments that promote learning and development for young children. It includes an introduction to basic child guidance techniques for individual and group situations with emphasis on problem prevention and positive guidance strategies, recognition, communication, limit setting, problem solving and behavior modification. Students apply their knowledge of the environment’s role in an actual work setting. **“Articulated”**

**CDEV1232 Foundations of Child Development II** 4 cr.
This course provides the opportunity to examine child development theory and practice in greater depth. Students will integrate knowledge of developmental needs, developmentally appropriate environments and appropriate observation and recording methods. Prerequisites: CDEV1210.

**CDEV1340 Planning and Implementing Curriculum** 3 cr.
This course examines the role of the teacher in early childhood settings. It applies the knowledge of child development as it relates to individual children, communities, curriculum and communication activities. Prerequisites: CDEV1210.

**CDEV1510 Internship I** 3 cr.
This course provides an opportunity to apply knowledge and skill in an actual child development setting. Students will observe and assess children’s behavior, facilitate free-choice play, implement adult-directed learning experiences, and maintain professional relationships. Prerequisites: CDEV1200, CDEV1210, CDEV1220, and CDEV1230 and/or instructor’s permission.
CDEV2320 Profiles of the Exceptional Child 3 cr.
This course examines the development of children with special needs and prepares caregivers to integrate children with special needs into child development settings. Prerequisites: CDEV1210.

CDEV2330 Advanced Child Guidance 3 cr.
This course provides students with the opportunity to further examine guidance techniques and intervention strategies that are effective in dealing with children displaying a wide range of behaviors. Emphasis will be placed on the prevention and resolving of problem behaviors, use of behavior modification techniques, working with parents and designing behavior plans. Prerequisites: CDEV1210, CDEV1230.

CDEV2500 Shadow Study 1 cr.
This course provides students an opportunity to shadow a master teacher in a child development setting. Course goals are based on individual need. Emphasis may include observation of various child development settings, adult-child interaction or the role of a caregiver. Prerequisites: Instructor’s permission.

CDEV2540 Sensory/Motor Learning Experiences 3 cr.
This course provides an overview of sensory/motor learning experiences in either home- or center-based settings. Students integrate knowledge of child development, learning environments, and teaching methods to promote sensory, fine motor, gross motor, perceptual-motor, and self-care skill development. Prerequisites: CDEV1210 or instructor’s permission.

CDEV2550 Cognitive/Multimedia Learning Experiences 3 cr.
This course provides an overview of cognitive and multimedia learning experiences in either home- or center-based settings. Students integrate knowledge of child development, learning environments, and teaching methods to promote curiosity, attention, perception, memory, problem solving, logical thinking and media literacy. Prerequisites: CDEV1210 or instructor’s permission.

CDEV2560 Language and Literature Learning Experiences 3 cr.
This course provides an overview of language, literacy and literature learning experiences in either home- or center-based settings. Students integrate knowledge of child development, learning environments, and teaching methods to promote whole language, conversation, literature, literacy and bi-lingualism. Prerequisites: CDEV1210 or instructor’s permission.

CDEV2570 Multicultural Learning Experiences 3 cr.
This course provides an overview of multicultural learning experiences in either home- or center-based settings. Students integrate knowledge of child development, learning environments, and teaching methods to promote social-emotional development, self-esteem, and prosocial skills in a diverse society. Prerequisites: CDEV1210 or instructor’s permission.

CDEV2574 Contemporary Issues in Child Care 3 cr.
This course gives students an opportunity to examine ways in which current societal and community issues impact the development of children and the well being of families. Cultural diversity and dynamics, bias and community resources including social services, are explored.

CDEV2580 Creative Development Learning Experiences 3 cr.
This course provides an overview of creative/aesthetic learning experiences in either home- or center-based settings. Students integrate knowledge of child development, learning environments and teaching methods to promote children’s artistic, musical, movement and dramatic abilities. Prerequisites: CDEV1210 or instructor’s permission.

CDEV2590 Social/Emotional Learning Experiences 3 cr.
This course provides an overview of social, emotional, and moral learning experiences in either home- or center-based settings. Students integrate knowledge of child development, learning environments, and teaching methods to promote emotional development, self-concept, self-esteem, social skills, diversity awareness, social studies, perspective taking, moral responsibility, altruism, and values. Prerequisites: CDEV1210 or instructor’s permission.

CDEV2600 Professional Leadership 3 cr.
This course prepares students to take an active/advocate role in the child development profession by examining the history, current trends and future of childcare and early childhood education.

CDEV2640 Program Planning 3 cr.
This course provides an advanced-level exploration of program management skills for caregivers of young children. Emphasis is on organizing, implementing and evaluating a quality, comprehensive childcare program plan. Prerequisites: Technical college diploma in Child Care.

CDEV2700 Project Exceptional I 1 cr.
This course is Part I of Project Exceptional Minnesota’s original curriculum. The course will examine the inclusion of children with special needs into quality child care environments. Students will gain knowledge of historical and family perspectives to help provide respectful and sensitive care to children with special needs.

CDEV2701 Project Exceptional II 2 cr.
This course is Part II of Project Exceptional Minnesota’s original curriculum. The course will explore components of successful parent-provider relationships. It will look at fostering nurturing care for children at risk for behavior challenges or developmental delays. This course will also examine how to identify and refer a child with developmental concerns.

CDEV2702 SP/Needs III 2 cr.
This course will examine the educator’s role, environment, observation, children’s temperament and strategies. The course will focus on children who have or are at risk for challenging behavior.

CDEV2703 Project Exceptional: First Signs: Red Flags and Referrals 1 cr.
First Signs is a national training model that disseminates key information about developmental red flags as they relate to Autism and key referral information for educators to share with parents. Part of MN. Project EXCEPTIONAL that includes a unit on sharing concerns with families as part of the First Signs Training Workshop.

CDEV2704 Transforming the Difficult Child: The Nurtured Heart Approach 1 cr.
This course examines The Nurtured Heart Approach, based on the work of Howard Glasser. This unique approach is designed to help anyone working with children who have challenging behaviors. It combines four basic strategies for helping caregivers transform the way we see children who have high energy and high intensity from a challenge to a gift.

CDEV2710 Infant Toddler Social Emotional Growth and Develop 1 cr.
This module will explore infant and toddler social-emotional development for in-home and center-based settings. Students will integrate knowledge of temperaments and ages and stages of development so caregivers can create nurturing relationships, use positive child guidance techniques and develop positive social skills for infants and toddlers. Prerequisites: CDEV1210.

CDEV2711 Infant Toddler Routines and Environments 1 cr.
This module will explore ways to create developmentally appropriate environments and caregiving routines. Students will integrate knowledge of developmentally appropriate caregiving and teaching strategies in order to create a safe, healthy learning environment for infants and toddlers. Prerequisites: CDEV1210.

CDEV2712 Infant Toddler Language and Cognitive Development 1 cr.
This module will examine infant toddler language and cognitive development for in-home and center-based settings. Students will integrate knowledge of observation methods and ages and stages of development in order to facilitate infant-toddler language and cognitive growth and development. Prerequisites: CDEV1210 or instructor permission.
CDEV2713 Culture, Family, and Providers 1 cr.
This module will examine ways to be culturally sensitive and build partnerships with parents. Students will integrate knowledge of culturally sensitive/responsive caregiving techniques and curriculum approaches in order to enhance the learning environment of infants and toddlers from diverse backgrounds. Prerequisites: CDEV1210 or instructor permission.

CDEV2715 Sign Language in Early Childhood 1 cr.
This course is designed to equip students with the tools they need to introduce signing in childcare environments with preverbal children. Students will examine research, review benefits of signing with hearing infants, practice modeling signs, identify strategies for parental involvement with sign, and discover how to create learning opportunities in daily activities.

CDEV2720 Supporting the School-Age Learner in Math 1 cr.
This course combines an understanding of how children learn math and how to promote that learning by supporting the instruction in a primary/elementary classroom.

CDEV2721 Supporting the School-age Learner in Writing1 cr.
This course combines the understanding of how children learn writing and how to promote that learning by supporting instruction in a school aged classroom.

CDEV2722 Supporting the School-age Learner in Reading 1 cr.
This course combines an understanding of how children learn reading and how to promote that learning by supporting the instruction in a primary/elementary classroom setting.

CDEV2723 Choices: Keys to Quality for School-Age Programs 1 cr.
In this course you will learn how to structure your environment, not the children. You will learn why we should give school age children choices. What can we do about setting limits and the consequences we give? Through many different activities participants will enjoy learning how to define, establish, and implement choices in their childcare setting. You will also examine how to involve children in making healthy choices and establishing choices that are developmentally appropriate will also be explored.

CDEV2724 Child Guidance for School-Agers: Nurture & Growth 1 cr.
This course emphasizes the basics in communication, relationships, guidance strategies and understanding child/youth development as the foundation to successful behavior guidance. Participants will improve communication skills, better understand human relationships and their own beliefs, as well as identify strategies for handling conflicts in settings.

CDEV2730 Learning To Use the Ounce Scale 1 cr.
The Ounce Scale is an early childhood assessment tool used to support observation skills in early childhood settings. It is specifically designated to better understand children from birth to 42 months. It provides a system for understanding children, planning curriculum, communicating with parents and assessing child development.

CDEV2840 Practicum 3 cr.
This course provides an opportunity to apply knowledge and skill in program planning for early childhood/special education leadership roles. Students identify, design, implement, and analyze a comprehensive program that includes schedules, daily plans, sensitivity to needs of individual children and families, integration of children with special needs, integration of community resources, co-operation with co-workers, and staff development considerations. Prerequisites: Instructor’s permission.

CIVL1110 Introduction to Civil Engineering Technology 1 cr.
Introduces basic skills required for a career in civil engineering technology, focusing on the roles and responsibilities of the engineering team, professional ethics, problem solving with hand calculator and computer applications. Introduces civil engineering materials and analysis, standard laboratory procedures and reporting.

CIVL1120 Basic Computer Aided Design 3 cr.
First course in computer aided design (CAD) labwork using AutoCAD software. Topics include fundamentals of DOS, AutoCAD command structure, setting units and limits, drafting primitives, layering, use of editing tools, grid, snap, and axis commands. Assignments requiring extensive use of the CAD lab.

CIVL1130 Beginning Surveying 3 cr.
Introduces the three basic surveying tools - the tape, level, and transit/theodolite - along with proper field procedures for basic surveying which include taking field notes, taping and EDM, levelin, bearings and azimuths, topography, and mapping.

CIVL1140 Civil Engineering Technology and Government 2 cr.
A practical course explaining the engineering principles used in the design, construction and operation of municipal engineering facilities. Highlights the various functions of the Civil Technician as they relate to employment in the municipal working environment.

CIVL1150 Introduction to GIS 3 cr.
Students develop basic skills in applications of geographic information systems (GIS). Through hands-on projects, students will learn how to use GIS software, plan a project, create a database, conduct spatial analysis and create presentation graphics. No official prerequisites are required, but students should have basic computer literacy skills.

CIVL1160 Civil Engineering Project Management 2 cr.
This course will provide students with the knowledge and skills necessary to plan, organize and control a Civil Engineering Technology project. It will introduce the student to basic project management concepts and reinforce those concepts through the use of automated project management software.

CIVL1210 Materials Testing 4 cr.
This course familiarizes students with lab and testing procedures for testing construction materials. Topics include sieve analysis, relative density, compaction tests, Atterberg limits, and soil classification, concrete strength testing, and bituminous sampling.

CIVL1220 Civil Engineering Technology Drafting 4 cr.
An introduction to large scale mapping as used in highway and site design. Laboratory exercises include preparation of site plans, boundary surveys, and road plans. Laboratory exercises make extensive use of bearings and azimuths for line direction and location utilizing Cartesian Coordinates, elevation is represented by contours and profiles.

CIVL1230 Intermediate Surveying 4 cr.
This course covers the basics of horizontal and vertical curve geometry as used in highway design before undertaking the study of more advanced surveying topics including: use of mass diagrams to track earthwork on highways, control surveying mathematics, universal coordinate systems, and boundary location. Laboratory exercises will vary between CAD drawings and outdoor exercises.

CIVL1240 GPS and Construction Staking 3 cr.
A course on fundamental construction layout principles required for typical construction projects. Topics include: basic control networks, coordinate systems and coordinate geometry, alignment and grade for structures, roadway, and utilities, data collector use, and RTK GPS data acquisition, positioning, and mapping.
COMMUNICATIONS

COMM1221 American Sign Language - Level I 3 cr.
This course is an introduction to American Sign Language (ASL), visual/gestural Language used by deaf people in the United States and parts of Canada. Communicative functions, vocabulary, grammar and cultural aspects of the deaf community are included.

COMM1223 American Sign Language - Level II 3 cr.
This course is designed for students who have some knowledge of ASL or have completed level I (American Sign Language) in the past. It features an introduction to the next level of ASL including classifiers, idioms, numbers, fingerspelling, fingerspelled loan signs, and commands. The course will be include gestural communication techniques, visual discrimination and sentences. Receptive and expressive sign vocabulary building will be featured through class activities leading to basic and intermediate conversational skills in ASL. Information about the deaf community and its culture will be featured. Prerequisites: COMM1221.

COMPUTER LITERACY

COML1400 Introduction to Computers 3 cr.
This online-enhanced course covers the basics of using Personal Computers (PC's) and the Microsoft Office Professional suite of programs, including Word, Excel, Access and PowerPoint to create documents, spreadsheets, databases and presentations. Students will also be introduced to the Internet, e-mail and the history of computers.

COMPUTERS & SOCIETY

COS1000 Computer and Society Basics 1 cr.
This course covers basic information on operating system software, word processing software and presentation software, students will be introduced to the Internet, including ethics and security, information literacy and navigating an online platform.

COS1050 Computers and Society Essentials 2 cr.
This course covers the basic information on computer hardware, operating system software, word processing software and presentation software, as well as an introduction to spreadsheet and database software. Students will also learn about the Internet, including ethics and security, information literacy and navigation in an online platform.

CONCRETE AND MASONRY

CONC1600 Shop Theory 2 cr.
Students examine the IBC/IRC as it applies to residential and commercial practices. OSHA regulations covering construction and job-site safety are covered.

CONC1601 Shop I: Site Preparation for Construction 6 cr.
In this course students will evaluate and manage site preparation for foundations and flat concrete work. Excavation and fill requirements, managing construction site ground conditions, subcontractor considerations, and building layout will be included.

CONC1602 Shop II: Brick and Block Construction 4 cr.
This course will develop skill in concrete block construction. The course will utilize practice applications and actual construction projects. Cold weather shelter construction and block laying will be included.

CONC1604 Foundations, Concrete and Safety for Masons 4 cr.
This is an intro-level course constructing footings and foundations. Techniques, procedures and practices for concrete block, poured walls, and flatwork are studied. Building forms for flatwork and walls are also studied.

CONC1605 Math for Masons 2 cr.
The students use basic mathematics as it relates to the building construction industry. Students perform fundamental construction applications.

CONC1606 Properties and Testing of Mortar and Concrete 3 cr.
This course will provide students with an understanding of the effects of concrete materials on concrete construction. Aggregate properties, cement properties, supplemental materials, and admixtures will be discussed. Concrete mix proportioning and hardened concrete properties will be included in this course.

CONC1610 Concrete Problems: Diagnosis, Prevention and Resolution 2 cr.
This course is focused on quality in concrete construction by teaching awareness of potential problems. Instruction will teach diagnosis and resolution of problems in fresh and hardened concrete. Customer job relations is integrated into the problem resolution instruction.

CONC1613 Shop III: Advanced Brick and Block Construction 4 cr.
This shop class would incorporate actual projects at various job sites to gain skills in flat and or poured concrete applications. Applications would include residential, agricultural, renovation, and commercial construction.

CONC1614 Shop IV: Integrated Concrete Systems 4 cr.
This course is hands-on remodeling and new construction projects. The work will be done on-site and will integrate applications learned from previous courses for site preparation, concrete block, and poured concrete. The focus will be to build proficiency in concrete working skills and will include form work on the job.

CONC1615 Blueprint Reading Estimating 2 cr.
This course is designed to teach an understanding of building principles and how the specifications and requirements are presented through blueprints. Basic blueprint reading is addressed.

DENTAL ASSISTANT

DENT1100 Dental Science 4 cr.
This course provides an overview of basic normal body structure and function including an understanding of the common disease process. Special attention will be given to a comprehensive overview of the oral anatomical structures, functions, and development of the oral cavity, as well as the identification of structures of the head and neck and their functions. Prerequisites: Admission to Dental Assisting Program. **Articulated**

DENT1110 Pre-Clinical Dental Assisting 3 cr.
This course will introduce the student to the health and safety considerations for basic infection control and dental emergencies. Topics will include occupational exposure risks, personal protection, exposure control, hazard communication standards, and medical waste disposal, as defined by government guidelines and regulations including OSHA standards. Special attention will be given on how to reduce the risk of transmission of disease commonly found in the dental office between dental assistants and patients, including various sterilization and disinfection techniques. This course will also discuss the prevention and treatment of medical emergencies commonly found in the dental office. The student will have a basic understanding of the classification, administration, use, and effects of drugs commonly used in a dental office. Prerequisites: Admission to Dental Assisting Program. **Articulated**
DENT1120 Dental Health  2 cr.
This course is designed to provide the student with the knowledge necessary to instruct a patient in proper oral hygiene and explain the benefits of fluoride. It also will provide the students with basic nutritional concepts and their practical applications. Prerequisites: Admission to Dental Assisting Program.

DENT1130 Chairside Assisting I  3 cr.
This course introduces the student to the fundamentals of working in a dental office setting as a chairside assistant. It introduces concepts and techniques of basic equipment, supplies, four-handed dentistry, oral evacuation, and instrument identification and proper use. This course also provides an introduction to the psychology of patient management skills necessary for effective interaction with patients. Prerequisites: Admission to Dental Assisting Program. **Articulated**

DENT1140 Dental Materials  3 cr.
This course provides the student with the knowledge and practical application of dental materials commonly found in the dental office. Emphasis will be on chemical and physical properties, uses, types, and applications. Students will be able to identify uses for specific dental products and be aware of specific care and storage properties of various materials. Prerequisites: Admission to Dental Assisting Program.

DENT1250 Radiology  5 cr.
This course requires instructor approval if not taken in the semester sequence. This course assists the student with an understanding of how radiation is produced, principles of protection for the patient and the operator, and techniques for processing radiographs as well as identifying processing errors. This course covers the techniques used in exposing intraoral radiographs as well as technical errors and corrections. Students will learn to mount and evaluate films for their diagnostic value. The student will be exposed to the extraoral accessory films utilized in the dental office and proper technique for using them. Prerequisites: Admission to Dental Assisting Program or instructor permission.

DENT1260 Expanded Functions  5 cr.
This course prepares the assistant to perform all functions legally performed by a registered dental assistant (RDA) according to the Minnesota Dental Practice Act. This course covers the following expanded functions: alginate impressions for opposing models and study casts with bite registration, mechanical polishing of the clinical crowns, application of topical fluoride, rubber dam applications and removal, application of topical medications, orthodontic skills of preselecting orthodontic bands, removing and replacing ligature ties, and placement and removal of elastic separators. Also included are suture removal, placement and removal of periodontal dressings, adaptation of temporary crowns, cement removal, pit and fissure sealants, enamel etching, removal of bonding material, and nitrous oxide monitoring. Prerequisites: Admission to Dental Assisting Program or instructor approval.

DENT1270 Chairside Assisting II  3 cr.
This course furthers knowledge of chairside assisting duties by presenting concepts of charting, tray set-ups, and the restorative process to help further the development of basic skills of four-handed dentistry. This course also introduces basic concepts of the different specialties in dentistry. The student will be taught to identify the instruments, materials, and procedures needed to gain skills in assisting the dentist with each specialty. Prerequisites: Admission to Dental Assisting Program.

DENT1280 Dental Practice Management  2 cr.
This course is an overview of duties performed by a dental assistant with emphasis on patient registration, medical history forms, telephone skills, appointments, recordkeeping, and correspondence. It also will provide the student with knowledge of professional ethics and dental laws with emphasis on the Minnesota Dental Practice Act. Students will write the Minnesota Dental Jurisprudence Exam. This course also provides an introduction to the psychology of patient management skills necessary for effective interaction with patients. Prerequisites: Admission to Dental Assisting Program or instructor approval.

DENT2970 Externship  7 cr.
This course provides the student with actual experience assisting in an off-campus clinical setting in private dental offices, group practices, or specialty dental offices. Prerequisites: Prior completion of all Dental Assisting courses or instructor approval.

ECON1100 Principles of Microeconomics  3 cr.
This course is an introduction to price mechanisms, supply and demand, resource allocation, analysis of market structures, distribution of income, and business decisions regarding cost. Meets MnTC Goal 5.

ECON1200 Principles of Macroeconomics  3 cr.
This course analyzes the interactions between all segments of the economic system. The course will focus on savings and investment, aggregate supply and aggregate demand, the monetary system, unemployment and inflation, and fiscal policy. Additional topics may include the balance of payments and currency exchange rates determination. Prerequisites: College Algebra and Writing. Meets MnTC Goal 5.

ELECTRICAL CONSTRUCTION & MAINTENANCE

ELEC1110 D. C. Electricity and Lab  3 cr.
This course covers investigation of direct current and its behavior in series, parallel, and series/parallel circuits; measuring devices and components; and electromagnetism. **Articulated**

ELEC1120 A. C. Electricity and Lab  3 cr.
This course covers investigation of alternating current and its behavior in resistive and reactive series, parallel, and series/parallel circuits; use of test instrumentation; electromagnetic induction; and resonance. **Articulated**

ELEC1130 National Electrical Code I  3 cr.
This course covers the requirements of the National Electrical Code.

ELEC1140 Blueprint Reading for Technicians  3 cr.
This course investigates blueprint reading for electricians. This course consists of basic sketching and drawing techniques, applications of plans, scales and scaling applications, symbology, and print reading.

ELEC1210 Analog/Digital Electronics Theory  2 cr.
This course covers the theory of semiconductors, power supplies, amplifiers, digital circuits, microprocessor applications, sensors, and signal coupling materials/devices. Prerequisites: ELEC1110, ELEC1120, MATS1205.

ELEC1220 Analog/Digital Electronics Lab  4 cr.
This course covers connecting, testing, and analyzing semiconductors, power supplies, amplifiers, digital circuits, microprocessor applications, sensors, and signal coupling materials/devices.

ELEC1231 Construction Skills & Intro to Wiring Theory  3 cr.
This course covers material and design of residential wiring, wiring methods, selection of proper fastening devices, sizing of wire and boxes, branch circuit requirements and use of blueprints. Prerequisites: ELEC1110, ELEC1120, MATS1205.

ELEC1241 Construction Skills and Introduction to Wiring Lab  6 cr.
This course covers lab experiences in material and design of residential wiring, wiring methods, selection of proper fastening devices, sizing of wire and boxes, branch circuit requirements, and use of blueprints. Prerequisites: ELEC1110, ELEC1120, ELEC1130. **Articulated**
ELEC2110 Electrical Apparatus Theory 3 cr.
This course covers the principles of direct current motors, single- and three-phase motors and transformers, and proper use of meters and test equipment. Prerequisites: ELEC1110, ELEC1120, MATS1205.

ELEC2120 Electrical Apparatus Lab 6 cr.
This course covers analysis and troubleshooting of direct current motors, single- and three-phase motors, transformers, and proper use of meters and test equipment. Prerequisites: ELEC1110, ELEC1120, MATS1205.

ELEC2131 Programmable Logic Controllers Theory 2 cr.
This course covers theory of logic applications; connecting, programming, and operating programmable logic controllers; and AC and DC electronic drives. Prerequisites: ELEC1110, ELEC1120, ELEC1210, ELEC1220.

ELEC2141 Programmable Logic Controllers Lab 4 cr.
This course covers analysis and troubleshooting of logic applications; connecting, programming and operating programmable logic controllers; AC and DC electronic drives; and motor controls. Prerequisites: ELEC1110, ELEC1120, ELEC1210, ELEC1220.

ELEC2210 National Electrical Code II 3 cr.
This course covers continued requirements of the National Electrical Code. Prerequisites: ELEC1130.

ELEC2220 Electrical/Electronic Controls and Systems Theory 2 cr.
This course covers analysis and troubleshooting of logic controllers, AC and DC electronic drives, energy management systems, heating and cooling systems, fire alarm and security systems, and integrated voice/video/data and infrared systems. Prerequisites: ELEC2130, ELEC2140.

ELEC2230 Electrical/Electronic Controls and Systems Lab 4 cr.
This course covers analysis and troubleshooting of programmable logic controllers, AC and DC electronic drives, energy management systems, heating and cooling systems, fire alarm and security systems, and integrated voice/video/data and infrared systems. Prerequisites: ELEC2130, ELEC2140.

ELEC2241 Industrial & Maintenance Wiring Theory & Lab 3 cr.
This course covers the use of materials and design of industrial wiring, industrial tools and equipment, service equipment, and maintenance technology. Prerequisites: ELEC1231, ELEC1241.

ELEC2251 Commercial & Maintenance Wiring Theory & Lab 3 cr.
This course covers the use of materials and design of commercial wiring, commercial tools and equipment, service equipment, and maintenance technology. Prerequisites: ELEC1231, ELEC1241.

ELEC2260 Heating, Ventilation, and Air Conditioning Wiring 3 cr.
This course covers the use of materials and design of materials and equipment for heating, ventilating, and air conditioning residential, commercial and industrial buildings. Prerequisites: ELEC1231, ELEC1241.

ELECTRICAL LINEMAN
ELLW0098 Introduction to Climbing 1 cr.
This course covers the introduction to the equipment used for climbing. The use of this equipment will be applied to the act of learning to climb safely and correctly.

ELLW1110 Distribution I 4 cr.
This course covers the task of learning to climb safely along with the use of digger/derrick units. It includes an introduction of the materials and their applications, along with an introduction to the application of rigging to the industry. The safety aspect of the industry is stressed in these applications. Prerequisites: ELLW0098.

ELLW1120 Utility Equipment and Tools 2 cr.
This course offers an introduction to the tools used in the line industry. Personal tools, climbing tools, and the introduction to the safe operation of carrier-mounted devices are included. The digger/derrick and the personnel-carrying aerial devices will be covered. Prerequisites: ELLW0098.

ELLW1130 Basic Electricity 2 cr.
This course covers the introduction to electrical circuits and magnetic circuits, both AC and DC. The student will use mathematics to calculate voltage, resistance, and current in each type of circuit. This course is an introduction to the use of formulas needed to do the calculations that the lineman may encounter in this field. The introduction to the magnetic circuits will be the basis for transformer application. The safety aspects of calculating voltages and currents will be used to identify the exposure in such applications that could be a safety hazard.

ELLW1140 Distribution IIA 4 cr.
This course covers the construction aspects in the building of single-phase lines and the use of plan profiles, specification drawings, material lists, and their application to the field. It includes the equipment that will be used for this construction. Hot line work with sticks will also be introduced at this time. The hanging of guys, the stringing of conductors, anchor installations, industry framing practices, and safety in all line building, equipment operations, and material handling will be observed and practiced. Prerequisites: ELLW110, ELLW1120, and concurrent enrollment in ELLW1141.

ELLW1141 Distribution IIB 4 cr.
This course covers more of the material that is in ELLW1140. Prerequisites: ELLW110, ELLW1120, and concurrent enrollment in ELLW1140.

ELLW1150 Construction Planning and Practices 2 cr.
This course covers the use of different drawings, maps, and construction materials used in the lineman’s field. This includes the list of materials and specifications. Use of the transit will be introduced and applied to the lab field where lines will be staked for future building as a project. Placement of anchors and the installation of line equipment will also be used in the advanced part of the class. Prerequisites: ELLW110.

ELLW1160 Transformers I 4 cr.
This course covers the theory and applications of transformer principles of magnetic and electrical circuits for primary and secondary connections. Understanding of polarities is examined and applied. Use of the different types and possibilities of connections will also be covered, with the needed information for choosing the loading, transformer types and sizes, and the fusing of the same. Prerequisites: ELLW110.

ELLW1162 Transformers II 4 cr.
This course covers the actual mounting and connecting of the transformers to the primary and secondary systems, including the use and installation of over-current and over-voltage protection. The use of closed and open banks will be applied, as well as the paralleling of same. Safety of both the primary and secondary applications will be covered and used in all applications. Prerequisites: Concurrent enrollment in ELLW1160.

ELLW1170 Line Construction and Maintenance I A 4 cr.
This course covers the conversion of single-phase to multi-phase applications. The use of three-phase hot stick line applications will be applied to the changing of poles, deadends, crossarms, and running angles. The maintenance of three-phase systems will be applied. The use of insulated fiberglass boards and ladders, nylon hot line hoists, and block and tackle will be applied. Safety applications will be emphasized at all times throughout this course. Prerequisites: Concurrent enrollment in ELLW1172.
ELLW1172 Line Construction and Maintenance B 4 cr.
This course covers the continuation of line construction and main-
tenance. The application of ties, standard and preformed with
sticks and live line applications, is covered. The use of protective
coverup materials for linemen and support structures is covered.
The transferring and handling of energized conductors using tem-
porary supports, etc. are also covered. Prerequisites: Concurrent
enrollment in ELLW1170.

ELLW1180 Underground Cable and Fault Locating 2 cr.
This course covers the practices and techniques used in cable and
fault locating. The student will understand and demonstrate all
safety practices in the application and operation involved with the
equipment used in this course.

ELLW1185 Electrical Industry Search Skills 1 cr.
This course covers a comprehensive view of the aspects incurred
in job search activity. It will cover locating job openings, hidden
markets, assessing employment strengths, writing resumes, writ-
ing cover letters, completing applications, preparing for interview
questions, and using the computer highway for job searching.

EMERGENCY CARE

EMRG1007 Emergency Medical Technician (EMT) 6 cr.
This course provides basic training in emergency medical care. It is
designed to teach and develop skills necessary to emergency care
of the critically ill or injured. Emphasized in the course: The role
of the EMT consists of safety concerns, patient assessment, air-
way management, trauma and medical emergencies. This course
consists of lecture, skills, and clinical experience in a hospital set-
ting. This course meets the approval of the Minnesota Emergency
Medical Services Regulatory Board (EMSRB). Upon successful
completion, students will be eligible to take the National Registry
of EMT’s written and practical examinations for National Certifica-
tion. Prerequisites: HEAL1010 prior to EMT course completion or
concurrent with HEAL1010.

EMRG1008 EMT Refresher 2 cr.
This course provides basic renewal training for the emergency
medical technician. It is designed to teach and develop skills neces-
sary for re-certification as an EMT as mandated by the MNEMSRB.
Emphasized in the course: The role of the EMT consists of safety
concerns, patient assessment, airway management, trauma and
medical emergencies. This course consists of lecture and skills.
This course meets the approval of the Minnesota Emergency Medical
Services Regulatory Board (EMSRB). Upon successful completion,
students will be eligible to take the National Registry of EMT’s writ-
ten and practical examinations for National Certification. Prerequi-
sites: Student must provide proof of a current Healthcare Provider
CPR card, plus MN. EMT number and expiration date.

EMRG1017 First Responder 3 cr.
This course is design for individuals who are first on the scene of a
medical or trauma emergency. It is designed to teach responsibility
in emergency care of the seriously ill or injured, as well as develop
the skills and knowledge necessary to manage patient care until the
arrival of ambulance personnel. Upon successful completion of the
First Responder course students will be certified through the
Minnesota Emergency Medical Services Regulatory Board.

EMRG1018 First Responder Refresher 2 cr.
This course provides basic renewal training for individuals who are
currently certified as First Responders. It is designed to teach and
develop the most current skills and knowledge neces-
sary to maintain certification through the Minnesota Emergency
Medical Service Regulatory Board (EMSRB) as a First Responder.
Prerequisites: CPR for the Professional Rescuer (AHA Healthcare
Provider), you must also provide MN. First Responder number and
expiration date.

ENGLISH

ENGL1014 College Reading I 3 cr.
The course is designed to develop the effective reading and clear
thinking skills that are required to be successful in college today.

ENGL1018 Basic English and Writing Review 3 cr.
This course is designed to prepare students for Basic Communica-
tions. Students will learn the parts of speech, word usage, gram-
mar, capitalization, and punctuation. They will use these skills in
short writing assignments.

ENGL1023 Medical Reading and Study Skills 4 cr.
This course is designed to help students who are in or planning to
enter health care programs strengthen basic reading comprehen-
sion and vocabulary skills. Students will work on developing effi-
cient study skills. Learning experiences will include use of excerpts
from health care textbooks to practice skills.

ENGL1030 English Essentials 3 cr.
A basic writing course that introduces students to the principles of
composition. It includes such areas as organizational development,
expository, and persuasive paragraphs and short essays. All relevant
modes of communication, essential in the workplace are addressed,
including memos, letters, reports, faxes and Internet endeavors.
The course fosters the development of important cognitive abilities
such as analysis, synthesis, interpretation and evaluation. Prerequi-
sites: Appropriate assessment score or instructor’s approval.

ENGL1035 College Reading II 3 cr.
This course is designed to develop effective reading and clear
thinking skills that are required to be successful in college today.

ENGL1000 Applied Business Writing 3 cr.
This course provides students with the skills needed to effectively
communicate in writing in the technical workplace. Students will be
required to use critical analysis and logical reasoning skills in the
preparation of course assignments. Applications focus on specific
report formats. The course is for students in technical diploma pro-
grams. Prerequisites: Enrollment by advisor or counselor approval.

ENGL1150 Composition I 3 cr.
This course emphasizes the process of writing expository and per-
suasive essays using effective writing skills and a variety of research
techniques. Also included in the course content are critical reading and
logical reasoning. Prerequisites: Must pass Accuplacer test or success-
fully complete ENGL1030 or instructor approval. Meets MnTC Goal 1.

ENGL1300 Introduction to Creative Writing 3 cr.
This course introduces students to the fundamentals of creative
writing. The elements of fiction, poetry, nonfiction, and screen-
writing are covered. Emphasis will be placed on both the writing
process and the end product. Prerequisites: Must meet qualifying
scores on ACCUPLACER test OR successfully complete ENGL1030
OR receive instructor’s approval. Meets MnTC Goals 1 & 6.

ENGL1400 American Short Story 3 cr.
This course emphasizes the review and analysis of examples of the
short story format. These stories will be by various American writers
from the period 1789 to the present. Also included in the course con-
tent are critical reading and logical reasoning. Meets MnTC Goal 6.

ENGL1550 Introduction to Literature 3 cr.
This course introduces the study of literature as a mode of discourse
for defining, exploring, and expressing human experience. There is an
emphasis on learning the skills of reading and writing about literature.
This course will cover fiction, drama, and poetry, with attention also
paid to literary non-fiction. Thus the class will introduce students to
such basic concepts as (for fiction) plot structure, point of view, char-
acterization, imagery and symbolism, setting, tone, irony, and style;
(for drama) protagonist/antagonist, plot dramatic structure, tragedy
and comedy; (for poetry) persona, denotation/connotation, figurative
language, metrics and major verse forms. Meets MnTC Goal 6.
ENGL1625 Film Studies 4 cr.
This course emphasizes the review and analysis of films. This will include how movies reflect and shape the hopes, dreams, and aspirations of the society that produces them. These films will be from various genres and span the entire time frame that movies have been a popular phenomenon. Also included in this course is logical reasoning. Meets MnTC Goal 6.

ENGL1650 Greek Mythology 4 cr.
This course emphasizes the review and analysis of various Greek myths. This will include how these myths have reflected and shaped art and history. Also included in the course are critical reading and logical reasoning. Meets MnTC Goal 6.

ENGL1750 Fantasy and Science Fiction Literature 3 cr.
This course emphasizes review, analysis and discussions of the genres of fantasy and science fiction. Evaluations and points of view for these genres are also considered. The works are viewed as reflections of real contemporary issues in environmental, technological, cultural, religious, economic and political spheres, and the role of the world citizen dealing with these issues is discussed. Prerequisites: Recommended ACCUPLACER reading score over 62. Meets MnTC Goal 6.

ENGL1800 Mystery and Detective Literature 3 cr.
This course introduces the study of mystery and detective literature. There is an emphasis on exploring the relationship between contemporary mystery fiction and the stories of antiquity. Students will read a wide variety of literature and explore the texts through a variety of different literary approaches. The course will introduce students to such basic concepts as plot structure, point of view, characterization, imagery and symbolism, setting, tone, irony, and style. Meets MnTC Goal 6.

ENGL2000 Composition II 3 cr.
This course will offer challenging insights into the act of writing. Students will continue to strengthen their writing skills while engaging in analysis of literary texts and secondary sources. In writing critical essays based on that analysis, students will apply rhetorical strategies related to purpose, audience, genre and context. Prerequisites: ENGL1150. Meets MnTC Goals 1 & 6.

ENGLISH FOR SPEAKERS OF OTHER LANGUAGES

ESOL0030 ESOL Listening and Speaking I 4 cr.
In this intermediate level course, non-native speakers will work to understand the meaning of messages beyond day to day comprehension for survival. It is intended to help students increase proficiency in listening comprehension, pronunciation, and fluency. Students will also learn strategies that will lead to language acquisition. Prerequisites: A beginning level background in English and the required Accuplacer score.

ESOL0032 ESOL Reading I 4 cr.
This course covers the basics of reading English for non-native speakers at the intermediate proficiency level. Prerequisites: A beginning level background in English and the required Accuplacer score.

ESOL0035 ESOL Writing and Grammar I 4 cr.
This course is part one of a study and review of basic English grammar and writing for non-native students at the intermediate proficiency level. Prerequisites: An appropriate score on the Accuplacer.

ESOL0040 ESOL Listening and Speaking II 4 cr.
In this intermediate level class, students will focus on listening comprehension and speaking. It is intended to help students increase proficiency in listening comprehension, pronunciation, and fluency. Prerequisites: An appropriate score on the Accuplacer or satisfactory completion of ESOL0030.

ESOL0042 ESOL Reading II 4 cr.
This course continues the study of the basics of reading English for non-native speakers at the high-intermediate to the low-advanced proficiency level. Prerequisites: ESOL0032 or the required Accuplacer Score.

ESOL0045 ESOL Writing and Grammar II 4 cr.
This course is a study and review of English grammar and writing for non-native students at the intermediate to advanced proficiency level. Prerequisites: An appropriate score on the Accuplacer or satisfactory completion of ESOL0035.

EXERCISE & SPORT SCIENCE

EXER1000 Intro to Human Performance Studies 3 cr.
Introduction and orientation to the fields of and related to physical education, sports management and exercise science. Includes an overview of aims, objectives, values, issues, qualifications and opportunities in related professions as well as a brief historical perspective of sport as an industry.

EXER1015 Personal Health and Wellness 3 cr.
A comprehensive course that focuses on disease prevention, physical activity, nutrition, and general health facts. The course is designed to help each student take responsibility for their overall health and learn practical ways of achieving a safe and healthy lifestyle. Course topics include self-assessment, wellness improvement plan, personal program design, exercise research, investigation, and exercise critical thinking issues. Course syllabus information is subject to change without notice.

EXER1020 Strength Training 2 cr.
This course is an introductory course to strength or resistance training. Students will perform more than four different workouts during the course of the semester designed for various levels of resistance training expertise. Topics covered during lecture include: skeletal and muscular anatomy and physiology, program design, lifting safety, weight room etiquette, and strength plateaus.

EXER1025 Physical Conditioning 2 cr.
This course is designed to teach students the numerous methods involved in the training of individuals and athletes in order to develop conditioning to achieve a desired effect. The course will focus on training students to become proficient in the use of plyometric exercise as well as spring mechanics, speed development, flexibility training, aerobic maintenance, and agility work. Specificity toward skills to be developed will be emphasized.

EXER1027 Olympic and Explosive Weightlifting 2 cr.
This intermediate-level course is intended to teach students elite strength training methodologies and techniques designed to develop athletes to a high level of performance. The course will give students a working knowledge on program design, nutrition, recovery, metabolic considerations, and the biomechanics involved in the sport of Weightlifting as well as elite athlete strength training. The course provides each candidate with a body of knowledge and expertise to enable a student to teach and train higher-level athletes in explosive free weight movements safely and effectively. At the end of the course, the USA Weightlifting Senior Coach exam will be given. Each student will have the opportunity of gaining a USA Weightlifting Senior Coach Certification after completing the strength-training course.

EXER1045 Organization and Management of Sport 3 cr.
Designed to introduce students to the functions of management and practical use of management skills as they relate to sporting activities and events. Includes basic study of organization, budget, legal aspects and leadership.
EXER1050 Nutrition for Health and Human Performance 3 cr.
This course will provide the student with introductory nutritional information for health, fitness and sports performance. Course content includes: classification and function of nutrients, body composition and weight management, dietary supplements and ergogenic aids, energy and metabolism, and eating disorders.

EXER1065 Psychology of Sport and Performance 3 cr.
This course examines thoughts, emotions, and feelings associated with performing one's best in sport and other areas. Topics covered include: realizing potential; performance goals; motivation; mental readiness; distraction control; group dynamics; injuries and rehabilitation; depression, eating disorders and substance abuse; and age and gender issues.

EXER1200 Team and Individual Games 2 cr.
Development and refinement of skills encountered through training, competing or organizing a number of team games such as flag/touch football, softball, soccer, speedball, volleyball and basketball.

EXER2020 Personal Training I 2 cr.
An introductory course to the business of personal training. This course will focus on the fundamental concepts in personal training for healthy, general populations. Topics include: program design, nutrition, health and fitness assessments, and legal and ethical issues.

EXER2030 Weight Management 2 cr.
This is an introductory weight management course for students interested in improving their lives through a weight management program and for students who are interested in working with clients on a consultant basis. Topics included during this course include: behavior modification, goal setting, nutrition, physical activity, diet fads, weight loss and weight gain, client interaction, and professional legal and ethical responsibilities.

EXER2060 Personal Training II 2 cr.
A lecture/laboratory covering an overview of various training methods and facilities used in one-on-one training, group training, and sports team training. Topics include client motivation, lifestyle modification coaching, program periodization, plyometrics, rehabilitation concerns, and exercise facility design.

EXER2090 Exercise for Special Populations 2 cr.
Learn about the theory and practice of functional exercise training for various populations. Learn program design techniques for healthy, diseased, and disabled populations. Students will get practical hands-on activities including stability and medicine balls, balance training, and free weights. Topics include: client recommendations and rehabilitation concerns.

EXER2115 Applied Exercise Physiology 3 cr.
This course will present an overview of the most important concepts for coaches, fitness instructors, or practitioners in a health-science field. It is not the intent to study each topic in depth. This course will feature laboratory activities, demonstrations, and hands-on learning experience, and from these activities, conclusions will be discussed regarding concepts.

EXER2125 Applied Biomechanics and Movement Anatomy 3 cr.
An in-depth course covering the study of biomechanics and the anatomical foundations of human movement. Topics include: muscle contraction, muscle origins and insertions, muscular and skeletal actions, articulations, and human movement fundamentals. Prerequisites: BIOL2000 recommended.

EXER2130 Foundations of Sport Science 3 cr.
An introductory study of anatomical, mechanical, maturational, psychological and physiological kinesiology as it applies to the practice of coaching. The major focus is to present the scientific principles that constitute the basis for sound athletic coaching practices.

EXER2225 Theory of Coaching 2 cr.
This course includes skill analysis, motivation techniques, teaching progression, responsibilities, qualities, coaching philosophies, coaching skills, practice management, psychology of coaching, game management, coaching methods, statistics and team organization of various sports. The course also includes exposure to some of the great coaches, past and present.

EXER2235 Intro to Athletic Training 3 cr.
This course is designed to provide the entry-level exercise science practitioner with an overview of the knowledge’s, competencies, and skills of athletic training. **Articulated**

EXER2240 Corporate Wellness/Health Promotion 3 cr.
This course provides the framework for implementing and facilitating effective corporate wellness programs. Topics include: health education techniques, motivation, sales and marketing strategies, working with the business professional, and assessment of corporation needs.

EXER2250 Group Fitness Instruction 2 cr.
An introductory course to the fundamental elements of group fitness instruction. Areas of focus include: music selection, choreography, cuing, leadership skills, and motivational techniques. A variety of instruction formats will be taught including: step, cardio, kickboxing, aqua, and specialty classes. Strongly recommended for those pursuing careers in Corporate Wellness.

EXER2270 Recreation Sports 3 cr.
This course will focus on the development, marketing, and facilitation of sports for the recreational athlete. It will also include activities for the outdoor enthusiast. Possible areas of focus include: intramural sports, community education programs, camping and orienteering, and adult recreation leagues.

EXER2280 Health and Aging 3 cr.
The purpose of this course is to introduce students to the complex physiological and psychological processes associated with aging. Students will learn about specific health problems associated with an older population and ways to prevent some of the nonessential age-related declines in function.

EXER2290 Legal Aspects of Sport 3 cr.
The purpose of this course is to provide students with an adequate background to ensure their comfort when dealing with legal issues surrounding sport. Students will learn of the inherent risk associated with sport management and administration. They will be provided with a history of legal arguments, defenses, and judgments in the sport arena. Varies.

EXER2295 Social and Ethical Aspects of Sport 3 cr.
This course examines how sport is affected by society, and how society is affected by sport; ethical and moral issues in sport for athletes, coaches, administrators, staff personnel and media; and legal considerations in roles related to sport.

**GM AUTOMOTIVE SERVICE EDUCATIONAL PROGRAM (ASEP)**

ASEP101 Automotive Fundamentals 3 cr.
This course is designed to develop the basic concepts needed for the General Motors Automotive Service Educational Program. This unit covers basic automotive safety and procedures in the shop. Different types and uses of fasteners, including thread repair, will be covered. The proper procedures for writing repair orders and parts requisitions will be covered. The use of General Motors service bulletins, as well as service and repair manuals, will be examined in detail, including wiring schematics. Instruction and GM certification in the General Motors Specialized Electronics Training program (GM-SET) is also a part of this unit. **Articulated**
ASEP1102  Electrical and Fuel Systems  3 cr.
This course begins by examining batteries, charging systems and starting systems used by General Motors. Proper testing methods utilizing various types of equipment will be stressed, followed by unit repair procedures. All General Motors’ ignition systems and emission controls will be examined. The fundamentals of GM engine computer systems and related sensors will be addressed. Diagnosis, adjustments and repair of component parts will be covered. An introduction to oscilloscopes and four-gas analysis will also be covered. Prerequisites: ASEP1101.

ASEP1103  Driveability  3 cr.
This course will cover General Motors engine control systems. Included will be a thorough examination of automotive microprocessors, sensor and actuator operation, DIS ignitions, TBI, PFI and other GM fuel systems. The proper use of service manual diagnostic information and trouble charts will be covered. The use of scan tools including TECH 1, TECH 2 and GM-PC for diagnosis will be covered in detail. This unit includes a continuation of scope and infrared operating and diagnosis. Prerequisites: ASEP1101 and ASEP1102; or instructor approval.

ASEP1104  Body Electronics  3 cr.
This course will cover General Motors body electrical systems. A study of the theory, diagnosis, and repair of electric windows, door locks, power seats, mirrors, electronic and conventional instrumentation, windshield wipers, cruise controls, theft deterrent systems and microprocessor-controlled body electronics is included. The automatic and electronic climate control systems will be addressed in this unit. The Supplemental Inflatable Restraint system (SIR) and its various applications and functions will also be examined. Prerequisites: ASEP1101, ASEP1102, ASEP1103; or instructor approval.

ASEP1105  Heating And Air Conditioning  3 cr.
This course is a study of the theory, operation, maintenance, diagnosis and repair of General Motors heating and air conditioning systems. The basic refrigerant cycle will be addressed, as well as system components and controls used by GM. Emphasis will be on GM CCOT and VDOT systems. Included will be an examination of manual controls used in conjunction with GM heating and air conditioning systems. Reclaiming and recycling of R-12 and R-134A and retrofitting will also be covered in this unit. Prerequisites: ASEP1101.

ASEP1108  Brake Systems  3 cr.
This course covers theory and practice of servicing brake systems on General Motor’s cars. Included will be disc/drum brakes, power brakes, diagonal split, anti-lock brakes, and four-wheel disc brakes. Prerequisites: ASEP1101.

ASEP1201  Dealer Work Experience I  8 cr.
This is on-the-job training at a GM dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college’s ASEP staff and ASEP coordinator at the dealership. Prerequisites: Enrollment in GM ASEP and successful completion of the previous semester.

ASEP1202  Dealer Work Experience II  8 cr.
This is on-the-job training at a GM dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college’s ASEP staff and ASEP coordinator at the dealership. Prerequisites: Enrollment in GM ASEP and successful completion of the previous semester.

ASEP1203  Dealer Work Experience III  1 cr.
This is on-the-job training at a GM dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college’s ASEP staff and ASEP coordinator at the dealership. Prerequisites: Enrollment in GM ASEP and successful completion of the previous semester.

ASEP1204  Dealer Work Experience IV  8 cr.
This is on-the-job training at a GM dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college’s ASEP staff and ASEP coordinator at the dealership. Prerequisites: Enrollment in GM ASEP and successful completion of the previous semester.

ASEP1205  Dealer Work Experience V  8 cr.
This is on-the-job training at a GM dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college’s ASEP staff and ASEP coordinator at the dealership. Prerequisites: Enrollment in GM ASEP and successful completion of the previous semester.

ASEP1212  Advanced Diagnostics/ New Model Update  1 cr.
This course provides the student with additional electronic fuel and body systems diagnosis and repair procedures. The most current factory diagnostic procedures will be stressed. Emphasis will be on GM-PC, TECH 1, and TECH 2, as well as additional lab scope and infrared analysis. Also, any new products or systems introduced on GM vehicles that have not been previously covered will be addressed. Prerequisites: ASEP1101, ASEP1102, ASEP1103,

ASEP2107  Steering and Suspension  2 cr.
This course covers the principles of operation, removal, reconditioning, installation and adjustments of GM steering and suspension systems. It includes comprehensive training on power/manual steering gears, power/manual rack and pinion systems, suspension repairs, wheel alignment, wheel balance and vibration diagnosis.

ASEP2110  Automatic Transmissions  3 cr.
This course covers the removal, disassembly, operation, reconditioning, assembly, installation and diagnosis of General Motors automatic transaxles and transmission.

ASEP2111  Engines  3 cr.
This course covers the operation, diagnosis, removal, reconditioning and installation of General Motors gas engines. Oil and coolant leak diagnosis and repair will also be covered. Prerequisites: ASEP1102.

ASEP2209  Driveline and Four-Wheel Drive  3 cr.
This course covers the disassembly, operation, reconditioning, assembly and adjustments of General Motors front and rear axles, driveaxles and driveshafts.

ASEP2303  Dealer Work Experience III  1 cr.
This is on-the-job training at a GM dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college’s ASEP staff and ASEP coordinator at the dealership. Prerequisites: Enrollment in GM ASEP and successful completion of the previous semester.

HEALTH

HEAL1000  First Aid/CPR  1 cr.
This course covers the knowledge and skills that are needed for emergency care of the injured or ill until medical care can be obtained. It should also serve to create an active interest in the prevention of accidents and illnesses. This course covers the knowledge for prevention of unnecessary death from heart attack, the signals of a heart attack, and the actions for survival. Basic skills performed in the management of basic life support are in accordance with standards set by the American Red Cross. (Attendance is mandatory in this course. No excuses are accepted. No makeup is scheduled.)
HEAL1010  CPR For the Professional Rescuer  1 cr.  
This course covers the knowledge and skills that are needed for emergency care of the injured or ill until medical care can be obtained. It is designed as a review for those who are professional rescuers, e.g., nurses, firefighters, police officers, lifeguards, etc., who need to renew their CPR certification every year. Basic skills performed in the management of basic life support are in accordance with standards set by the American Heart Association. (Attendance is mandatory in this course. No excuses are accepted. No makeup is scheduled.) Prerequisites: HEAL1000 or American Heart Level C. **Articulated**

HEAL1020  Advanced First Aid  1 cr.  
This course covers the knowledge and skills necessary to provide emergency care of the injured or until advanced medical care arrives. This course provides in-depth knowledge as well as advanced first aid skills. First aid skills are in accordance with the guidelines of the National Safety Council. (Attendance is mandatory in this course. No excuses are accepted. No makeup is scheduled.) **Articulated**

HEAL1030  Emergency Care Technical Trades  3 cr.  
This is an industry-related course that covers the knowledge and skills that are needed for emergency care of the injured or ill until medical help can be obtained and creates interest in the prevention of accidents and illness. This course covers the knowledge for prevention of death from heart attack or stroke and the signals and actions for survival. Covered also are the care and prevention of natural element conditions that may become life threatening situations. Basic skills performed in the management of basic life support are in accordance with standards set by the National Safety Council.

HEAL1035  Wilderness First Aid  1 cr.  
This course covers the knowledge and skills necessary to care for those who are injured or suddenly ill in remote locations. The Wilder- ness Safety defines wilderness as a remote geographical location more than one hour from definitive medical care. The information taught in this course will provide you with the "what to look for" and the "what to do's" necessary to successfully manage injuries and sudden illnesses that occur in delayed help situations. This course targets outdoor enthusiasts (hikers, skiers, hunters, climbers, etc.), individuals who work in remote areas, (farmers, foresters, linesmen, truckers, ranchers), people who live in areas where the EMS system may not be able to respond immediately to an emergency (small communities, ranches, and vacation homes), as well as for those who travel in countries where medical care may be inadequate or difficult to reach.

HEAL1040  Emergency Care on the Job  2 cr.  
This is an industry-related course that covers the knowledge and skills that are needed for emergency care of the injured or ill until medical help may be obtained and also to create interest in the prevention of accidents and illness. This course covers the knowledge for prevention of death from heart attack or stroke and the signals and actions for survival. Covered also are the care and prevention of natural element conditions that may become life threatening situations. Basic skills performed in the management of basic life support are done according to standards set by the National Safety Council.

HEAL1060  Nursing Assistant  5 cr.  
This course introduces concepts of basic human needs and the function of the nursing assistant in long term care and or home health care. Basic nursing skills will be demonstrated and practiced in the laboratory setting. Upon successful completion of classroom studies, the student will be able to complete 24 hours of supervised clinical experience in a long term care setting. This course is a prerequisite for the Practical Nursing Program. It meets the objectives of Federal State Statutory requirements for nursing assistant training. Individuals who provide direct contact services to clients of licensed facilities are required to have complete criminal background studies. Disqualified persons will not be permitted to work in these facilities.

HEAL1070  Trained Medication Aide  2 cr.  
This state-approved program provides an overview of the requirements concerning medications and their administration. Other topics include legal criteria, medical abbreviations, measurements, use of the Physician’s Desk Reference (PDR), and overview of body systems and drug classifications. Administration of medications via oral, eye, ear, rectal, and topical routes will also be covered. Attendance of all classes is mandatory; any absence will result in repeating the course. Students must attain 90% on all examinations to continue in the class. Prerequisites: Must have completed Nursing Assistant-Registered program.

HEAL1011  Anatomy and Physiology  4 cr.  
This course is an introduction to the structure and function of the human body. Focus will be on the study of each individual organ system and the interaction of each system with the rest of the body. Prerequisites: OFFC1045, HEAL1050. **Articulated**

HEAL1050  Health Career Mathematics  1 cr.  
This course will assist students in mastering the skills necessary to determine drug dosages. Applicable basic skills will be reviewed, followed by proportions and a study of the metric system and the apothecaries’ system. A major portion of the time will be spent solving drug dosage word problems. Prerequisites: Qualifying scores on ACCUPLACER Arithmetic test.

HEAL1052  Medical Terminology  2 cr.  
This course is an introduction to building medical terms and learning the meanings. Students will learn combining forms, word roots, prefixes and suffixes, and how these word parts apply to building medical terms. Students will also learn common medical abbreviations and symbols. THIS COURSE IS THE SAME AS OFFC1045.

HEAL1072  Pharmacology Basics  1 cr.  
This course will provide a framework of knowledge of medications in relation to body systems and disease conditions. The classifications, purposes, adverse effects and precautions of drugs will be described.

HEAL1080  First Aid/CPR for the Allied Health Care Provider  1 cr.  
This course covers the knowledge and skills that are needed for emergency care of the injured or ill until medical care can be obtained. It should also serve to create an active interest in the prevention of accidents and illnesses. This course is designed for those needing more advanced knowledge and skills than the layperson; medical assistants, personal trainers, lifeguard, police officers for emergency care of the injured or ill until advanced medical care can be obtained. Basic skills performed in the management of basic life support are in accordance with standards set by the American Red Cross. (Attendance is mandatory in this course. No excuses are accepted. no makeup is scheduled.)

HEAVY CONSTRUCTION EQUIPMENT MECHANIC

HCEM1101  General Shop Mechanics - Introduction  2 cr.  
Students achieve a basic understanding of skills needed in the heavy equipment field. Some areas covered are safety, hand and power tools, hand tool projects, filaring, soldering, gears, chains, bearings, seals, fuels, lubricants, fasteners, fittings, wires and connectors, belts, pulleys, couplings, and precision measuring instruments. **Articulated**

HCEM1110  Welding and Flame Cutting  2 cr.  
The application of several welding methods used in the Heavy Equipment Industry is covered in this course. Safety, theory, and practice will be taught in a lab setting. Cutting and heat bending are also included. Prerequisites: HCEM1101 or instructor’s approval. **Articulated**
HCEM1132 Heavy Duty Electrical 3 cr.
This is an introduction to electricity as applied to heavy equipment covering electronic theory and magnetism. Emphasis is on theory, diagnosis and repair of basic starting, charging, lighting and ignition systems. This course prepares students for HCEM1234 through classroom instruction and lab practice.

HCEM1140 Diesel Engine Overhaul I 4 cr.
This course teaches engine tear down, failure analysis, cylinder head repair, minor overhaul, and use of proper precision measuring instruments on engines used in the heavy equipment field such as Caterpillar, John Deere, Perkins, Case, Ford, Cummins, and Onan. This course also includes basic fundamentals of gas and diesel engine design, including the study of cylinder heads and blocks, lubrication, air intake, exhaust, electrical, cooling, and fuel systems. Precision measuring is included, along with preventive maintenance and minor repair as well as testing on stationary and mobile gasoline engines used in the heavy equipment industry. Safety and troubleshooting are stressed. Prerequisites: HCEM1101.

HCEM1160 Specialized Lab I 3 cr.
The student will work in a lab setting for the purpose of using this specialized lab to allow more time to complete goals. This may be remedial, foundation, or enhancement. This specialized lab is taken by both the diploma and the A.A.S. student. Prerequisites: HCEM1101, HCEM1110, HCEM1132, and HCEM1140.

HCEM1234 Heavy Duty Electronics 3 cr.
This course teaches students heavy duty electronics, diagnostics, and repair. The student will enhance their knowledge of equipment electronics and failure analysis through instruction and hands-on training. Course work will include electrical schematics and symbols, advanced multimeter training, testing, troubleshooting and repair of electronic monitoring systems. Computerized engine components are also covered. Prerequisites: HCEM1132.

HCEM1246 Diesel Engine Overhaul II 3 cr.
This course teaches engine tear down, failure analysis, cylinder head repair and major overhaul, and use of proper precision measuring instruments on engines used in the heavy equipment field such as Caterpillar, John Deere, Perkins, Case, Ford, Cummins and Detroit Diesel. This course also includes basic fundamentals of diesel engine design, including the study of cylinder heads and blocks, lubrication, air intake, exhaust, electrical, cooling, and fuel systems. Major tear down and measuring are included along with mastery of preventive maintenance and major repair, tune-up and testing on mobile and stationary diesel engines used in the heavy equipment industry. Safety and troubleshooting are stressed. Prerequisites: HCEM1101 and HCEM1140.

HCEM1250 Brakes 2 cr.
Instruction covers hydraulic and pneumatic brake theory and operation, component identification, application, and general repairs on heavy equipment. Safety and troubleshooting are stressed. Prerequisites: HCEM1101 or instructor’s approval.

HCEM1256 Diesel Engine Tune-up 3 cr.
This course includes component identification, testing procedures, problem analysis, valve and injection adjustment, pump replacement, and engine tune-up. Troubleshooting is stressed.

HCEM1260 Specialized Lab II 3 cr.
The student will work in a lab setting for the purpose of using this specialized lab to allow more time to complete goals. This may be remedial, foundation, or enhancement. Prerequisites: HCEM1246, HCEM1250, and HCEM1256.

HCEM1261 Specialized Lab II - AAS 2 cr.
This course is only for students pursuing the AAS (Cat Track) degree. The student will work in a lab setting for the purpose of using this specialized lab to allow more time to complete goals. This may be remedial, foundation, or enhancement. Prerequisites: HCEM1246, HCEM1250, and HCEM1256.

HCEM1267 Heavy Duty Electronic Systems 3 cr.
This introduction to basic hydraulics is a prerequisite to related courses. The student will study principles of hydraulics, identification of components, operation, fluids, and preventive maintenance. Students will use test instruments such as high-pressure gauges and flow meters to troubleshoot and diagnose hydraulic pump efficiency and condition of related system components. System components are disassembled and reassembled, with adjustments made to main and circuit reliefs in accordance with manufacturer’s specifications. Prerequisites: HCEM1101 and HCEM1132 or instructor’s approval.

HCEM2135 Transmissions 4 cr.
This is a technical course designed to promote understanding of standard sliding gear, synchronesh, and powershift transmissions used in heavy equipment industry. Theory related to hydraulic-assisted transmissions and torque converters, along with basic fundamental principles of hydraulics, torque multiplication, gear ratios, disassembly, assembly, and adjustment procedures are covered. Prerequisites: HCEM1101 and HCEM1132 or instructor’s approval.

HCEM2145 Hydrostatic Systems 3 cr.
Students study basic principles of operations, system components, testing procedures, repair techniques, adjustments, and preventive maintenance procedures. Prerequisites: HCEM1101 and HCEM2135 or instructor’s approval.

HCEM2175 Specialized Lab III 3 cr.
Students gain additional shop experience for entry-level positions in industry. Students diagnose, record, and make repairs on customer equipment including crawlers, loaders, motor graders, backhoes, etc. Repairs are made on heavy equipment systems such as hydraulic, brake, electrical, chassis, and sheet metal. After repairs, students complete the work repair order. Prerequisites: First-year courses HCEM1101, HCEM1132, HCEM1250, HCEM2115, HCEM2135, and HCEM2145, or instructor’s approval.

HCEM2176 Specialized Lab III - AAS 2 cr.
Students gain additional shop experience for entry-level positions in industry. Students diagnose, record, and make repairs on customer equipment including crawlers, loaders, motor graders, backhoes, etc. Repairs are made on heavy equipment systems such as hydraulic, brake, electrical, chassis, and sheet metal. After repairs, students complete the work repair order. Prerequisites: First-year courses HCEM1101, HCEM1132, HCEM1250, HCEM2115, HCEM2135, and HCEM2145 or instructor’s approval.

HCEM2225 Track Drive Systems 3 cr.
This course provides the student with an understanding of track drive component operation and wear. Students study principles of operation, demonstrate safe jacking and blocking procedures, and study track, track frame, sprocket, idler, and roller removal and installation. Wear analysis and preventive maintenance are stressed. Adjustments are made according to manufacturer’s specifications. Prerequisites: HCEM1101 and HCEM2115, or instructor’s approval.

HCEM2238 Hydraulics II 3 cr.
This course is designed for students with knowledge of hydraulic flow and pressure. Students learn National Standard Institute symbols used in fluid power diagrams. Students design complete hydraulic systems around available components and manufacture and assemble two types of high pressure hoses. A technical study provides students with operational knowledge of computer-controlled multiple hydraulic systems. Students troubleshoot and diagnose hydraulic system malfunctions. Prerequisites: HCEM1101, HCEM1132, and HCEM2135, or instructor’s approval.

HCEM2255 Steering Systems 3 cr.
This course provides students with basic understanding of steering systems used on heavy equipment. The course begins with mechanical systems followed by intensive overview of hydraulic-assisted systems used on crawlers, articulated loaders, motor graders, and backhoes. Students study principles of operation, components, repair procedures, and adjustments. Prerequisites: HCEM1101, HCEM2135, and HCEM2145, or instructor’s approval.
HEAVY DUTY TRUCK TECHNOLOGY

HDTT1100 Truck Technology Fundamentals 4 cr.
This course covers shop procedures and safety in the truck shop such as safety in the use of hand tools, power tools, hoists, jacks, and other equipment used by a heavy duty truck technician. Different types of welding techniques, thread repair, and similar procedures will be discussed. Methods of record keeping, repair orders, and the use of repair manuals and related service publications will also be covered. The student will be familiarized with the basic fundamentals of operating heavy trucks. Included will be pre-start and pre-trip inspection procedures, basic operation of the vehicle, and shut-down procedures. Dropping and hooking and basic maneuvering of the trailer will be covered. **Articulated**

HDTT1103 Air Brake Systems 6 cr.
This course covers the theory of compressed air and its application to the brake system. Air system components will be identified and their functions studied individually and within the entire system. Emphasis will be placed on general repair and trouble-shooting. The course will cover identification of the mechanical components of the foundation brake system and their application, including all wheel/axle components. Theory of operation, removal, repair, and replacement along with diagnostic and testing procedures are covered in this course.

HDTT1106 Welding Procedures 2 cr.
This course covers basic position welding techniques of the different welding applications used in the heavy truck repair industry. This course will cover applications of oxyacetylene welding, brazing, cutting, heating, arc welding, and wire-feed (MIG). Fall. **Articulated**

HDTT1109 Fluid Power Systems 2 cr.
This course covers the basic theory, operation, and understanding of the two- and four-stroke cycle diesel engine. The compression ignition engine principles and the engine’s components will be covered, along with the disassembly, inspection, evaluation, reassembly, and proper torque techniques which are used on this type of engine. The different engine tools and their proper usage will also be covered.

HDTT1113 Air Brake Systems 6 cr.
This course covers the identification, inspection, basic refrigeration, preventive maintenance, servicing, electrical, and refrigeration charging of tractor cab A/C units common to heavy trucks.

HDTT2101 Drive Train I 6 cr.
This course covers repairing, rebuilding, and diagnosing problems in transmissions and differentials. Students are taught how to remove, inspect, and replace gears, shafts, bearings, seals, and other components using the proper tools and procedures.

HDTT2104 Drive Train II 4 cr.
This course covers the theory of operation, repair, removal, inspection, and installation of the clutch and drive shafts.

HDTT2107 Diesel Fundamentals 3 cr.
This course covers the basic theory, operation, and understanding of non-electronic diesel fuel systems. Each of the components, their operation, usage, and internal parts will be covered and tied together to show the student the complete fuel system.

HDTT2110 Diesel Fuel Systems 1 cr.
This course covers the proper method of performing the federal and state D.O.T. truck inspection. Use of inspection forms and permit stickers will also be covered. After completion of this course and final exam, the student will be a certified truck inspector and able to perform both federal and Minnesota D.O.T. inspections.

HDTT2123 Diesel Engine Fundamentals 4 cr.
This course covers the basic fundamentals of the diesel engine and its operation. Component identification, and preventive maintenance. Also included will be basic information pertaining to heavy truck hydraulic components.

HDTT2128 D.O.T. Certification (Elective) 1 cr.
This course covers the proper method of performing the federal and state D.O.T. truck inspection. Use of inspection forms and permit stickers will also be covered. After completion of this course and final exam, the student will be a certified truck inspector and able to perform both federal and Minnesota D.O.T. inspections.

HIST1100 History of the United States to 1877 4 cr.
This class is a survey of American history from early Native Americans to Reconstruction. It consists of a combination of primary and secondary sources that focus on the major political and social changes in America to 1877. Meets MnTC Goal 5.
HIST1200 History of the U. S. from 1877 to the Present 4 cr.
This course will survey the major historical events of the United States from 1877 to the present. The text emphasizes political and social developments while the secondary readings provide a closer examination of this period’s major themes. Meets MnTC Goal 5.

HIST1300 World History 4 cr.
Big History is a new approach to World History that widens the scale of study from a few thousand years to the entire past. Rather than studying World History through the lens of different cultures, nations, and civilizations, Big History starts 13 billion years ago and attempts to place the human species in the context of the universe. This course begins with the scientific account of the universe’s beginnings and then describes the formation of the earth including its flora and fauna. The majority of the course concentrates on the major trends and developments of human societies from the Paleolithic, throughout the agrarian, and into the modern era. Prerequisites: College reading level recommended. Meets MnTC Goal 5.

HIST1400 American Environmental History 3 cr.
This course examines the interaction between humans and the natural world in the United States from the late nineteenth century to the present. In addition, heavy emphasis is placed on recent Minnesota Environmental history. The course considers such diverse topics as the impact of industrialization and urban growth on the environment, the emergence of ecology and green politics, and the creation of the idea of Nature in American culture. Students will be expected to develop an historical understanding of the major themes of modern American environmental history; relationships between human activity and pollution in cities, emergence of reform movements and environmental regulation, relationships between increasing urban growth and increasing environmental concern, and the rise of environmental politics in both local and national settings. Prerequisites: The course is taught for students interested in American history as well as those seeking a better understanding of environmental issues. Students will need access to a computer and be familiar with word processing programs and browsing the Internet. Meets MnTC Goals 5 & 10.

HIST1500 History of Minnesota 3 cr.
This three-credit history course explores the history of Minnesota from the ice age and early Native Americans to the events of today. Through a combination of three textbooks, internet sites and field trip visits to historical sites students can gain an appreciation of the contributions made by those who came before us in the state we now call Minnesota. Meets MnTC Goal 5.

HIST1600 History of Western Civilization 3 cr.
This course examines the nature of the Western world and how it has shaped the men and women who are its heirs. Student will understand the role Western civilization has and is playing in the worldwide civilization of the present day. The course focuses on the outstanding institutions, ideas, and creative works that have formed (and expressed) Western civilization, as well as on Western interactions with other civilizations in the past and present. As Shakespeare observed, “What’s past is prologue.” Meets MnTC Goal 6.

HUMANITIES

HUMA1100 Introduction to Humanities 4 cr.
This course emphasizes eight disciplines as they have grown and influenced each other and the societies that produced them through the ages in western history. These disciplines are: literature, art, architecture, philosophy, music, science, religion, and technology. The course will include analysis of written texts, pictures, and ideas. Meets MnTC Goal 6.

INFORMATION SYSTEMS TECHNOLOGY

ISTC1000 Introduction to Information Systems Management 3 cr.
This course provides an overview of computer hardware, relational databases, local area networks and programming. Information Systems terminology and industry acronyms associated with data, voice and video are also covered.

ISTC1010 Microcomputer Maintenance 3 cr.
This course is designed for the PC novice to learn how to maintain, upgrade, and repair personal computers. Participants will remove and replace motherboards, and various input/output devices. Hard drives maintenance procedures (formatting) and loading operating systems will be covered.

ISTC1030 Operating Systems I 3 cr.
This course covers operating system administration with the use of command line for microcomputers. Topics include booting and configuring the system, the use of internal commands and external commands, file management, networking, and writing of batch files.

ISTC1033 Operating Systems II 3 cr.
This course is designed to provide students with the knowledge and skills necessary to install, configure, manage and troubleshoot desktop clients in a network. Lectures, hands-on projects and exercises reinforce skills as they are learned. Specific topic coverage includes: Installing; Using the System Utilities; Managing File Systems and Storage; Users, Groups, Performance Tuning; Working with the Registry; Booting Process; Fault Tolerance; Troubleshooting Prerequisites: ISTC1030.

ISTC1040 Network Systems I 3 cr.
This course presents an introduction to OSI 7-layer Reference Model used in data communication and computer networks with emphasis on network infrastructure design, configuration, implementation and subnetting. This course is the first in a four-course sequence designed to prepare students to take the Cisco Certified Network Associate (CCNA) examination.

ISTC1050 Database Systems 3 cr.
This course focuses on the fundamentals of relational databases; their use, design and implementation. The course will include entity-relationship modeling, logical and physical design and normalization, as well as the definition of tables and indexes. The use of Structured Query Language (SQL) for data manipulation will be emphasized. The course will also cover concepts of client/server, distributed and object-oriented databases, security and data warehousing. Prerequisites: COML1400.

ISTC1060 Security I 3 cr.
This course is designed to investigate the analysis and implementation of network security policies, procedures and guidelines for establishing, monitoring and controlling methodologies for local and wide area networks. The course covers authentication methods, communication security, infrastructure security, cryptography, operational security and firewalls.

ISTC1100 Business Communications 3 cr.
This course focuses on the foundations of business communication in the Information Systems Industry. The topics will include developing your business writing skills, topics on the social and ethical implications of Information Systems.

ISTC1205 Web Client Programming 3 cr.
This course covers technologies used to create Internet client applications. Students will create numerous web applications using scripting tools/languages. The course includes the topics of cascading style sheets, tables, frames, forms and multimedia integration. Emphasis will be placed on the design, development, deployment and maintenance of the interactive web sites. Prerequisites: ISTC1300.
ISTC1210  Web Server Programming  3 cr.
This course covers server-side components used to create dynamic web sites. Several technologies such as middleware, scripts and servlets will be explored. Methods and tools for integrating data will be emphasized including those provided as open source. Prerequisites: ISTC1300.

ISTC1230  Systems Analysis and Design  3 cr.
This course provides coverage of systems analysis and design theories and techniques. Both the traditional, structured approach and the object-oriented approach to systems development will be explored. Students will learn the theory of analysis, design and implementation following the guidelines of the Systems Development Life Cycle. Students will demonstrate system modeling with UML. Prerequisites: ISTC1300 or equivalent programming experience.

ISTC1300  Introduction to Programming  3 cr.
This course provides the beginner programmer with a guide to developing programs using structured programming logic. Analysis, design, coding, testing and debugging will be covered. Students will be exposed to various design techniques, such as flowcharts, as prequels to writing code. Programming key points include structured programming, modularized programming, decision-making, looping, arrays, data file utilization, arrays and object-oriented classes. Students will be exposed to procedural and object-oriented programming. Students will be required to generate simple programs for this course.

ISTC1400  Wireless Systems  3 cr.
This course provides hands-on experience to wireless networking. The student will explore the latest wireless technologies following networking industry 802.11x standards. This course includes the planning, designing, installing and configuring wireless LANs from the principal Wireless LAN vendors, and explores the interrelationship of their hardware, software and applications. Prerequisites: ISTC1040 or equivalent networking experience.

ISTC2005  Network Systems II  3 cr.
This course is the second course in a four-course sequence designed to introduce students to local area network hardware router installation and configuration. The course is designed around OSI 7-layer Reference model and is the second course in the sequence to help students prepare to take the CCNA certification exam. Prerequisites: ISTC1040.

ISTC2010  Network Systems III  3 cr.
This course is an introduction to layer-2 switching, IPX, VLANs, Access Control Lists, and IGMP. This is the third course in a four-course sequence designed to prepare individual students for the CCNA certification exam. Prerequisites: ISTC2005.

ISTC2015  Network Systems IV  3 cr.
This course focuses on WANs and Broadband infrastructure design, configuration and implementation as it relates to the 7 layer OSI model. Topics include communications and computer networks, WAN technology and terminology, Cable modems, Port Address Translation, Network Address Translation, DHCP, xDSL, and PPP. This is the final course preparing the student to take the CCNA exam. Prerequisites: ISTC2010.

ISTC2035  Operating Systems III  3 cr.
In this course the student is expected to learn the procedures underlying server operating systems. The course will cover network design, installing Servers, configuring and optimizing Servers, managing users and groups, dis quotas, basic and dynamic disks, security, and print management. Prerequisites: ISTC1040, ISTC1033.

ISTC2040  Database Management  3 cr.
This course focuses on working with an enterprise-level database management system as well as basic administrative tasks such as installations. The use of Structured Query Language (SQL) will be emphasized as it relates to data definition and data manipulation. Topics also include triggers and stored procedures. Prerequisites: ISTC1030.

ISTC2050  Data Structures  3 cr.
This course introduces the student to the theory, design and implementation of common data structures and related algorithms. Topics include linked lists, recursion, stacks, queues, search algorithms, sorting algorithms, graphs and binary trees. Students will write numerous programs to demonstrate comprehension of the course topics. Prerequisites: ISTC1300 or equivalent programming experience.

ISTC2065  Security II: Firewalls  3 cr.
This course is designed for the network administrator who needs to learn the basics of VPN security and network firewalls. Basic installation techniques are covered along with how to make an intelligent choice of firewall technology. Basic firewall troubleshooting is also presented. This course aligns with the CheckPoint CCSSA Certification outline. Prerequisites: ISTC1060.

ISTC2070  Security III: Forensics  3 cr.
This course provides the student with methods for conducting a computer forensics investigation including procedures, tools, ethics, and analysis. This course maps to the objectives of the International Association of Computer Investigative Specialists (IACIS) certification. Prerequisites: ISTC2065.

ISTC2100  Project Management  3 cr.
This course will provide fundamentals of planning and managing projects for information system (IS) organization. This includes creating a capstone project which will involve schedules, using critical path, assigning resources, and tracking progress. Focus is on topics that are unique to management of projects in an IS department. Prerequisites: Students should take this course in their last semester of studies.

ISTC2120  Financial Accounting for Information Systems  3 cr.
This course focuses on the fundamentals of the accounting system, as well as examines financial reporting from the perspective of decision makers outside the company. The topics will integrate these inside/outside perspectives by studying the accounting activities that take place inside the company and evaluating their impact on users outside the company. Topic coverage is paced appropriately for non-accounting majors.

ISTC2140  Digital Convergence  3 cr.
This course will provide hands-on experience to voice over IP technology. The student will explore the difference between analog and digital signals, public switched telephone, circuit switched, and packet switched networking. Prerequisites: ISTC1040 or equivalent networking experience.

ISTC2310  Java I  3 cr.
This course covers the JAVA language and how to use it to create a variety of applications. The course will cover object-oriented topics such as classes, methods, constructors, inheritance and polymorphism as well as primitive data types and control structures. The course will include creating applications that utilize the JAVA Swing Classes. Object-oriented design using the unified Modeling Language will also be introduced. Although this is an introductory Java course, students are expected to have an existing knowledge of programming concepts. Prerequisites: ISTC1300.

ISTC2315  Java II  3 cr.
This course builds on JAVA 1 to cover some of JAVA’s more advanced capacities. Topics covered include the embedding of simple applets in web pages, enterprise wide development of distributed n-tier client/server applications, Remote Method Invocation (RMI), JAVA Database Connectivity (JDBC), server side JAVA programming (Servlets/JSP), collections and data structures. Prerequisites: ISTC2310 or equivalent Java programming experience.
This course is designed to teach students the skills to succeed in college. The topics include time management, note taking, test taking, college resources, motivation, organizational skills, learning styles, memory techniques, and stress reduction. Prerequisites: Students must be enrolled in TRIO program.

INTS1060 TRIO First Year Experience Critical Thinking 1 cr.
This course is designed to build on INTS1050 and continue to work with students on the skills to succeed in college. The topics include critical thinking, effective discussions, organization, testing, and learning difficulties. Prerequisites: Students must be in the TRIO program.

INTS2955 Community Development through Service Learning 2 cr.
The Community Development through Service Learning course is designed to promote experiential learning to familiarize students with citizenship and community service. Students are required to demonstrate their knowledge of and approach to community service through participation in an approved community service project. Students will be asked to reflect upon their experience then analyze the experience based on relevant course concepts.

INTERDISCIPLINARY STUDIES

INTS1000 College Success Strategies 2 cr.
This course is designed to assist students to improve their cognitive and affective skills in order to achieve academic success. The topics included in the course are time management, note taking, test taking, using print and electronic resources, responsibility, motivation and attitude. This course meets the requirements for MnTC Goal 2.

INTS1010 Job Search Skills 1 cr.
This course is designed to help students who are completing their education or seeking a job change to conduct a thorough and productive job search. In this class each individual will receive assistance with completing their resume and/or professional portfolio. The professional portfolio is the latest tool used to conduct an effective job search. The class will cover the “do’s” and “don’ts” of marketing your skills and talents to both large and small companies. It will also provide valuable information on the best ways to conduct an effective interview thus taking away some of the anxiety associated with the interviewing process.

INTS1012 Career Planning 1 cr.
This course is designed for individuals seeking to clarify their career options. Class participants complete several commonly used career assessments. They include an interest inventory that defines an individual’s interests as they relate to work and career options. The Myers-Briggs Type Indicator provides information on how different career choices interface with different personality traits. Also included are assessments that evaluate an individual’s skills and values as they relate to career choice. This class is taught in a computer lab, which makes it easy for individuals to learn about accessing some of the most up-to-date career information available through the Internet. In addition to lab work the class also includes a helpful amount of class lecture and discussion. This class is highly recommended for students anticipating high school graduation, for college students unsure of a career path and for the adult learner looking to change or advance their career. **Articulated**

INTS1040 Sharing Your Culture 1 cr.
This course is intended for international students required to present cultural and native country information as part of their tuition and fees. Topics will include: identification of audience, use of visuals aids, organization of the individual’s cultural and/or country topic, practice in presentation delivery. This class is reserved for international students accepted into a DCTC program of study, attending full-time under an F1 visa.

INTS1050 TRIO First Year Experience 2 cr.
This course focuses on the personal development of students attending full-time under an F1 visa. The topics include time management, note taking, test taking, college resources, motivation, organizational skills, learning styles, memory techniques, and stress reduction. Prerequisites: Students must be enrolled in TRIO program.

INTS1060 TRIO First Year Experience Critical Thinking 1 cr.
This course is designed to complement INTS1050 and continue to work with students on the skills to succeed in college. The topics include critical thinking, effective discussions, organization, testing, and learning difficulties. Prerequisites: Students must be in the TRIO program.

INTERIOR DESIGN

IDES1100 Design Fundamentals 4 cr.
This course covers the elements and principles of design: line, shape and form, space, texture, color and balance, proportion and scale, unity and harmony, and emphasis in two-dimensional and three-dimensional format. Color will be dealt with in detail to include color basics, theory, and psychology, and how color affects us and/or a space. We will approach the solution of design problems using the creative problem solving techniques. **Articulated**

IDES1110 Drafting for Interiors 4 cr.
This course covers the basic skills necessary to complete the drafting process of any given space. Students will learn proper use of drafting equipment, proper line quality, appropriate use of architectural symbols and lettering, dimensioning, electrical symbols and application, elevations, sections, detail, and isometric drawings. The skills learned will be used in the majority of all future design courses.

IDES1112 Introduction to SketchUp Modeling Software 3 cr.
This course will introduce the motivated student to 3 dimensional modeling software currently being used in professional design offices. Fundamental concepts, commands, and tools of the SketchUp will be taught in an enhanced on-line learning environment. There will be two on site formal lectures introducing basic concepts and ten on-line sessions. Students will submit required projects, questions and comments, to D2L server. Students will complete self-paced tutorials available at the following web address: http://www.sketchup.com. Prerequisites: The student will have a working knowledge of Mac OS and/or Windows XP. It is recommended the student have a background in either drafting, art or computer graphics.

IDES1120 Critical Thinking and Programming 4 cr.
This course focuses on the personal development of students attending full-time under an F1 visa. The topics include time management, note taking, test taking, college resources, motivation, organizational skills, learning styles, memory techniques, and stress reduction. Prerequisites: Concurrent enrollment in IDES1000 and IDES1110.
IDES1135 Visual and Verbal Presentation 3 cr.
This course covers the process of making visual and verbal presentations. These presentations will be focused on the appropriate industry needs. Students will incorporate the basic steps in making a verbal presentation, including the basics of the sales process, and study the various ways of making a visual presentation, including sketching techniques that can be implemented in a creation. One-point and two-point perspectives will also be included. Prerequisites: Concurrent enrollment in IDES1100 and IDES1110.

IDES1206 Residential Studio I 3 cr.
This course covers the basic skills necessary to design both public and private interior spaces in a home. The interior design process will be applied, with an emphasis on the design development phase (refining the design concept and focusing on design details). Students will investigate residential furnishing, lighting, and finish sources and will be introduced to specifying these products. Residential building systems (electrical, plumbing, and HVAC) will be introduced. Students will apply their programming design fundamentals, as well as verbal and visual communication skills, in progressively complex residential interior design projects. Visual tools will include manually-drafted floor plans, presentation elevations, and presentation boards. Prerequisites: IDES1100, IDES1110, IDES1120, and IDES1135.

IDES1217 Commercial Studio I 3 cr.
This course covers the basic skills necessary to design interior spaces in commercial settings. The interior design process will be applied, with an emphasis on the design development phase (refining the design concept and focusing on design details). Students will investigate contract furnishings, lighting and finish sources and will be introduced to specifying these products. Students will apply their programming, design fundamentals and verbal/visual communication skills in a variety of plans, presentation elevations, and presentation boards. Prerequisites: IDES1100, IDES1110, IDES1120, and IDES1135.

IDES1225 Computer Aided Drafting 3 cr.
This course introduces the student to two-dimensional drafting skills using CAD (computer-aided design). The software used in this course is AutoCAD for Windows; the release will be determined by what is currently being used in the interior design profession. AutoCAD tools used to draw, edit, and display 2-D drawings will be studied and utilized, using hands-on training. Students will learn how to set up and plot drawings using a variety of paper sizes and architectural scales. Other AutoCAD features that will be covered include layering, blocks, text, and dimensioning. These skills will be used in the Interior Design kitchen/bath and commercial courses. Students enrolling in this course are expected to have a working knowledge of Windows operating system. Prerequisites: IDES1110, COML1400 or instructor approval.

IDES1230 History of Art, Architecture and Interiors 4 cr.
This course covers the history of art, architecture, and interiors, from ancient times through the 21st century, with which an interior designer must be familiar for use in industry applications.

IDES1235 Advanced Visual Presentation Techniques 2 cr.
This course covers computer based design visualization practices. These practices will be focused on the appropriate industry needs. Students will utilize computer based color application techniques to create fully rendered presentation drawings. Application of scanned materials and incorporation of environmental graphics will also be examined. Three dimensional computer modeling processes will be explored, utilizing a number of different software applications. Integration of computer generated models into photos of existing spaces, mapping of true textures to the models, simulated lighting effects and preliminary animation techniques will also be covered.

IDES2100 Interior Design Career Directions 1 cr.
This course prepares the student with the tools and information necessary to obtain an internship position upon the completion of the interior design coursework. Individual skills needed in different design positions will be researched and identified. Internship and career goals will be established. A portfolio of assignments and projects will be developed that best match the desired career directions of the student. Prerequisites: IDES1100, IDES1110, IDES1120, IDES1135, IDES1206, IDES1217, IDES1225, IDES1230. Concurrent registration or completion of IDES2106, IDES2110, IDES2136, and IDES2146.

IDES2106 Color and Light 3 cr.
The student will continue to study the hue, value and intensity of color. They will investigate the dynamics of color and light in interior space while developing the knowledge of what color is, why it happens, and how it is controlled. Prerequisites: IDES1100, IDES1110, IDES1120, IDES1135, IDES1206, IDES1217.

IDES2110 Materials, Estimating and Specifications 3 cr.
This course provides students with information that will allow them to establish a systematic approach for selecting materials in interiors. Students will also create the content of specifications documents for interiors, emphasizing code requirements and testing standards. Environmental issues and concerns in relation to the product materials will be addressed. Textiles and their use in residential and commercial interiors are presented. Students will learn the appropriate estimating techniques to determine accurate material amounts for any given job. The overall appropriateness and manufacturing process combined with the use of materials for walls, floors, and ceilings will be emphasized. Prerequisites: IDES1100, IDES1110, IDES1120, IDES1135, IDES1206, IDES1217.

IDES2136 Commercial Studio II 4 cr.
This course covers the interior design of public spaces. The interior design process will be applied, with emphasis on the design development phase (space plan and design details and presentation elevations) as well as contract documentation appropriate to this class (product specifications, installation plans, and schedules, working elevations and reflected ceiling plans). Commercial building support systems will be introduced. Strategic facilities planning will be explored. Prerequisites: IDES1100, IDES1110, IDES1120, IDES1135, IDES1206, IDES1217, IDES1225, IDES1230, and concurrent registration in IDES2110.

IDES2146 Residential Studio II (Kitchen and Bath) 4 cr.
This course covers the basics of residential construction and their application with kitchen and bathroom interior spaces. The course uses the guidelines published by National Kitchen and Bath Association (NKBA) and the principles of universal design. Spatial analysis and the selection and product specification of appropriate materials, cabinetry, and appliances will be introduced. The interior design process phase contract documentation appropriate to this class will be emphasized, which will include an installation plan and schedule, an electrical and lighting plan, and working elevations as well as sections and details for custom millwork. Prerequisites: IDES1100, IDES1110, IDES1120, IDES1135, IDES1206, IDES1217, IDES1225, and IDES1230; concurrent registration in IDES2110.

IDES2200 Professional Business Practices and Sales 3 cr.
This course will emphasize the business practices specific to the interior design industry, including organizational methods and procedures. Sales and marketing techniques, building a clientele, qualifying clients, determining fees, and proposals will be presented. Establishing a business, understanding a business plan, and identifying those issues pertinent to all successful designers are included. Prerequisites: IDES1100, IDES1110, IDES1120, IDES1135, IDES1206, IDES1217, IDES1225, IDES1230, IDES2106, IDES2110, IDES2136, and IDES2146.
LANDSCAPE HORTICULTURE

**LAHT1000 Plant Science**  2 cr.
This course covers the study of biology of higher plants, including morphology, physiology, and taxonomy. Emphasis is placed on knowledge relevant to landscape horticulture.

**LAHT1010 Soil Science**  3 cr.
This course covers the study of the fundamentals of soil and their use in horticulture. The course is an overview of the physical, chemical, and biological properties of soils, their classification and management, and soil fertility.

**LAHT1100 Woody Plant Materials I**  2 cr.
This course covers the identification and use of woody plants, including trees, shrubs, and evergreens, in Minnesota landscapes.

**LAHT1110 Woody Plant Materials II**  2 cr.
This course covers the identification and use of woody plants, including trees, shrubs, and evergreens, in Minnesota landscapes.

**LAHT1200 Plant Pests**  3 cr.
This course is an overview of the biology, identification, and control of weeds, insects, and infectious and non-infectious diseases common to landscapes of Minnesota.

**LAHT1300 Landscape Construction I**  3 cr.
This course covers the study and practice of the skills necessary to install landscape plantings and materials. Sample subjects include planting, edging, mulching, retaining walls, decks, patios, and fences. This course emphasizes plantings. Building codes and permits are also discussed.

**LAHT1310 Plant Maintenance**  2 cr.
This course covers the maintenance of landscape plants other than turf by proper cultural practices, including pruning, fertilizing, damage repair, and support.

**LAHT1320 Turf Management**  3 cr.
This course is an introduction to establishing and maintaining turf, including turf species identification, seeding, sodding, fertilization, aeration, and other cultural practices.

**LAHT1420 Protected Horticulture**  3 cr.
This course presents basic concepts of growing plants under protective cover or in containers so as to better control the above and/or below ground environment. This course is applicable to anyone who grows plants in greenhouses, cold frames, interior landscapes, ornamental containers and elsewhere.

**LAHT1502 Safety and Equipment**  1 cr.
This course is an introduction to the safe use and basic maintenance of tools and equipment. Personal safety issues as well as legal issues are discussed.

**LAHT1510 Landscape Mathematics**  1 cr.
This course covers solving mathematical problems common to the landscape horticulture trade, including calculating areas, fertilizer rates, pesticide rates, and others. Prerequisites: Satisfactory score on CPT math entrance exam or passing grade in MATS 0200.

**LAHT1600 Landscape Design I**  3 cr.
This course is an introduction to design theory and drafting techniques. Basic design elements, site characteristics, and history of landscape design are discussed. Students are taught basic drafting skills and are prepared to create and read simple landscape plans.

**LAHT2000 Herbaceous Plant Materials**  2 cr.
This course is an introduction to annuals, perennials, groundcovers, ornamental grasses, and other herbaceous plants grown in Minnesota. Students identify and name assigned plants as well as supply information about the use and culture of each.

**LAHT2010 Indoor Landscaping**  3 cr.
This course is an overview of the materials and methods of indoor landscaping and indoor plant maintenance. Students will identify foliage plants and their cultural requirements. Practices include lighting, acclimatization, watering, fertilizing, and others.

**LAHT2100 Landscape Construction II**  3 cr.
This course covers the study of design, planning, estimating cost, and construction of such landscape features as decks, retaining walls, patios, and fences. Students will build hardscapes in class. Basic elements of surveying are included. Prerequisites: LAHT1300.

**LAHT2110 Irrigation and Lighting**  2 cr.
This course covers the fundamentals of landscape irrigation and lighting, especially for residential sites. Subjects include materials, design, and installation.

**LAHT2120 Landscape Surveying**  1 cr.
This course deals with the basics of land, topographical and construction surveying as it is used in landscaping. Students use hand and tripod instruments. Required for construction majors; suggested for all students.

**LAHT2130 Site Grading and Drainage for Stormwater Management**  1 cr.
This course is a follow-up to LAHT2120 Landscape Surveying and will cover concepts of grading and drainage as utilized by landscape design and construction professionals on a site-specific scale. Students will learn how to read existing landforms and anticipate potential problems related to stormwater run-off. Students will learn how to manipulate landforms for functional, aesthetic and storm water management reasons with a priority set on minimizing disruption to existing on and off site features. An understanding of site topography and hydrology coupled with the ability to thoughtfully manipulate landforms will allow designers and contractors to create landscapes that are functional and aesthetically pleasing while avoiding costly mistakes associated with improper site drainage. Prerequisites: LAHT1510 and LAHT2120.

**LAHT2202 Landscape Design II**  4 cr.
This course is an advanced study of design theory and presentation graphics. Includes plan, detail and elevation drawing techniques using various media. In depth discussion and application of design principles, design process and professional practice. Prerequisites: LAHT1600.

**LAHT2210 Design Problems**  3 cr.
This course reinforces design theory concepts through residential, commercial, and public space design problems. Presentation techniques and professional practice are further discussed.

**LAHT2230 Landscape Computer Aided Design I**  2 cr.
This course is an introduction to the use of computers in the design process. This is an elective class suggested for design majors. Prerequisites: Instructor permission.

**LAHT2232 Landscape Computer Aided Design II**  2 cr.
This course is a continuation of LAHT2230 and expands on the use of computers in the design process. This is an elective class suggested for design majors enrolled in LAHT2210. Prerequisites: LAHT2230.
LANDSCAPE HORTICULTURE - MARKETING & SALES

LAHT2300  Plant Propagation  2 cr.
This course is an overview of plant propagation and terminology. Students become familiar with industry techniques including seeding, cuttings, and grafting. This course is required for plant production majors.

LAHT2312  Nursery and Greenhouse Operations I  2 cr.
This course continues from LAHT1400 and 1410. Nursery topics include container production, nursery pests, and inventory. Greenhouse topics include introduction to bedding plant production and chemistry of growth media. Prerequisites: LAHT1400 and LAHT1410.

LAHT2320  Nursery and Greenhouse Operations II  3 cr.
This course is a continuation of LAHT 2310 with an emphasis on bedding plant production. Topics include fertilization, pest control, size control, and other cultural practices. Students will grow a bedding plant crop. Prerequisites: LAHT2312.

LAHT2400  Pest Management  2 cr.
This course is an overview of pest control and integrated pest management. It reviews proper, safe, and legal application of pesticides, with emphasis on knowledge needed to pass state pesticide applicator’s test. Prerequisites: None, but LAHT 1200 is suggested.

LAHT2410  Special Pruning Methods  1 cr.
This course covers theory and practice of such distinctive pruning practices as bonsai, espalier, and topiary. Prerequisites: None, but LAHT 1310 is suggested.

LAHT2500  Landscape Business Management  4 cr.
This course is an overview of the requirements needed for successful management in a landscape business. Subjects include personnel management, sales and marketing, government issues and basic concepts of consumerism, pricing and distribution.

LAHT2510  Landscape Estimating  3 cr.
This course is an overview of the competitive bidding process including job estimating, proposal writing, and project specifications. It includes practice in completing business records common to the landscape horticulture industry. Prerequisites: LAHT 1510 or permission of instructor.

LAHT2605  Introduction to Sustainable Landscape Practices  2 cr.
The ability of Earth’s ecosystems to sustain life as we know it is coming under increasing pressure from the demands of our consumer oriented society. If future generations are to inherit a healthy planet then we will need to rethink the way we live our lives right down to the way we landscape our back yards, school grounds and city parks. This course will introduce students to the broader concepts and definitions of sustainability - meeting the needs of the present without compromising the ability of future generations to meet their own needs - and illustrate how those concepts can translate to the site specific scale and influence our approach to the design of our local landscapes. While acknowledging the underlying premise of reduce-reuse-recycle this course will introduce students to topics including concepts of Permaculture that can be applied to future landscape projects. This course will consist of classroom lectures and field trips to natural areas and built projects that demonstrate current examples of sustainable landscape practices. Prerequisites: None.

LAHT2620  Water Gardening  1 cr.
This course covers all the components of water gardening including: different types of water gardens, how to design and install a water garden, different types of pumps needed, identification, use, potting and growing of water plants, selection and care of fish for a garden, chemicals needed, and maintenance, upkeep and over wintering of water gardens.

MARKETING & SALES

MKTC1000  Principles of Marketing  3 cr.
Introduction to marketing terms, concepts, and skills useful in analyzing marketing problems. Covers legal, behavioral, ethical, competitive, economic, technological and international factors affecting product, pricing, promotion, and marketing channel decisions. Identify factors marketing managers take into account when creating a marketing plan, including buying behavior, market segmentation, product life cycle, packaging, branding, pricing, advertising, sales promotion, public relations, personal selling, and product distribution methods.

MKTC1100  Fundamentals of Sales  3 cr.
Introduction of the basic principles and applications of the sales process as they may apply to industrial, wholesale and retail selling situations. This would include prospecting and qualifying, planning and pre-approaching, approaching the customer, the sales presentation/demonstration, handling objections, closing the sale and post-sale service and follow-up with customer. **Articulated**

MKTC1150  Consumer and Professional Buying Behavior  3 cr.
Course examines the principles of the behavioral sciences of psychology, sociology and anthropology and how these sciences are used in creating marketing communications plans aimed at consumer or professional buyers. Specific topics include perception processes, lifestyle analysis, personality psychographics, motivation analysis and influence of groups on buying behaviors.

MKTC1200  Professional Sales  3 cr.
Course examines the knowledge and skills required of an effective salesperson. Students will examine methods of identifying prospects, securing appointments, pre-approach planning, gaining attention and interest, understanding prospects’ wants and needs, obtaining agreement of concerns and solutions, showcasing product benefits, handling sales resistance, identifying and responding to buying signals, sale-closing techniques, post-call analysis and customer retention techniques.

This course studies advertising fundamentals. Students will explore the marketing communications plan, product and service positioning, consumer behavior theories, uses of various media, relationship advertising, and the process of developing creative strategies. Examination of advertising’s relationship to other promotional elements of selling, sales promotion and publicity, and the functions and operation of an advertising agency.

MKTC2010  Advertising Campaign Management  3 cr.
This course emphasizes overall advertising campaign management. It focuses on strategy development, advertising, and promotional relationship, media strategy, budget management and control, and measuring results. Students study and analyze case histories and current campaigns covered in advertising trade publications. Students study advertising management’s role in the marketing process, and sharpen their abilities to think strategically, analyze, conceptualize and make sound decisions. Students prepare and present a full advertising campaign. Prerequisites: MKTC2000.
MKTC2050  Direct Marketing  2 cr.
Learn the principles and components of direct marketing. Topics include marketing channels, the concepts of profiling, modeling and segmenting, database management, management in direct marketing, market analysis, privacy regulations, and internet, email and e-commerce marketing. Special concentration will be focused on Customer Relationship Management (CRM), a key competitive strategy, which focuses on the needs of customers.

MKTC2060  Proposal Writing  1 cr.
This course is an introduction to the proposal-writing process and its role in the marketing cycle. It covers the skills needed and information required to write a compelling proposal. It also covers the components of a good proposal and factors that can result in a rejected proposal.

MKTC2105  Marketing Communications Writing  3 cr.
Course examines how to write advertising copy for all areas of marketing communications such as the Internet, public relations, news media, scriptwriting, business writing as well as for print, radio, television and collateral media.

MKTC2220  Promotional Marketing  2 cr.
This course explains the importance of promotions in marketing. It defines the steps in promotion planning and the strategies used in both trade and consumer promotions. Techniques in promotional strategies, such as motivational and support programs, event sponsorship, premiums, contests and sweepstakes, tie-in programs, sampling, discounts, and couponing, will be discussed.

MKTC2310  Public Relations  3 cr.
This course explains the nature and use of public relations as a promotional tool. Training in the writing and preparation of press releases and press kits, publicity campaigns, conduct of press conferences, and other public relations tools. Course also includes current practices and problems in the field of public relations. Emphasizes successful case histories and planning techniques.

MKTC2410  Marketing Visual Communications  1 cr.
The understanding of print and electronic visual communications is an integral part of marketing communications. In this course, students will be introduced to the fundamentals of the role visual communications play in the marketing process. The course includes study how to select pictures to use in e-marketing, public relations and print including the importance of a photograph's content. Students will familiar with the role visual communication specialists play in the marketing process.

MKTC2505  E-Marketing  3 cr.
Course provides an overview of electronic commerce by examining and evaluating tactics of businesses utilizing the internet and other electronic media as part of their marketing mix. A review is made of Web technology trends and e-commerce strategies.

MKTC2550  International Marketing  3 cr.
This course introduces students to the concepts and disciplines of international marketing. Students develop an understanding of the international environment and its impact on marketing. Topics include social and cultural influences; political, legal and financial considerations; exporting and importing; organizational alternatives; information sources; market-entry strategies; pricing and distribution; sales and communications practices; counter trade; and other current international marketing issues.

MKTC2600  Marketing Research  3 cr.
This course examines the processes and techniques used in securing and using information to identify marketing problems and opportunities. Businesses need current information on which to base their marketing decisions; this course studies research to help business determine marketing strategies and create plans for such objectives as product development, marketing promotional evaluations, operation efficiencies and client satisfaction.

MKTC2815  Business Law  3 cr.
Examine workplace issues impacting supervisory responsibilities and explore the influence of ethics on individuals and organizations. You will be introduced to the American legal system. Understand civil, contract, employment, and labor laws and how they affect business, such as harassment, discrimination, Torts, documentation and terminations.

MKTC2900  Portfolio and Interviewing  1 cr.
Students will prepare their portfolios for interviewing and showing potential employers. Students will also learn how to set-up interviews, develop interviewing skills and create their resumes and cover letters for job searches.

MATHEMATICS

MATS0200  Basic Mathematics  3 cr.
This course is designed to develop and increase the student’s ability to perform basic math operations and to solve mathematical problems relevant to technical education. Topics covered include whole numbers, fractions, decimals, ratio and proportion, percents, and problem solving. Signed numbers and simple algebraic equations are introduced near the end of the course.

MATS0305  Introduction to Algebra  4 cr.
This course introduces students to concepts of basic algebra. Topics include operations with real numbers, variable expressions, geometric computations, solution of linear equations with applications, translating linear equations to and from graphs, manipulating polynomial expressions and factoring. Prerequisites: Completion of MATS 0200 or satisfactory score on Accuplacer.

MATS0400  Introduction to Geometry  1 cr.
This course is designed to introduce the student to basic geometry. Topics covered include lines, angles, angle pairs, circles, polygons, and solid figures. The student will work with formulas for circumferences, perimeters, areas, and volumes. Prerequisites: Successful completion of MATS 0200 or satisfactory score on math entrance examination.

MATS0500  Introduction to Trigonometry  1 cr.
This course introduces the student to trigonometry as a practical problem-solving tool. Students learn to use sine, cosine, and tangent functions, in addition to the Pythagorean Theorem, in order to solve right triangles. The law of sines and the law of cosines are also introduced. Prerequisites: Successful completion of MATS 0200 or satisfactory score on Accuplacer math.

MATS0600  Intermediate Algebra  4 cr.
Students with a basic algebra background are prepared for college-level mathematics courses such as college algebra, statistics, math for liberal arts, and concepts in math for elementary teachers. After reviewing linear equations and factoring methods, students move on to study rational expressions and equations, radical expressions and equations, rational exponents, quadratic equations and their solution in the complex number system, coordinate geometry including lines and circles, and functions and their graphs. Prerequisites: Successful completion of MATS 0305 or satisfactory score on math entrance exam. This course serves as a prerequisite for MATS1251, MATS1300, and MATS1350.
MATS1205 Math for Electricians 3 cr.
A course for students enrolling in the Electrical Construction program. After a brief review of fractions, decimals, percents, and proportions, students will apply significant figures and engineering notation in applying Ohm’s law, basic formulas of series and parallel circuits, the theorem of superposition, and Norton’s and Thevenin’s theorems. Students will further solve simultaneous equations and apply Kirchhoff’s laws to series, parallel, and complex circuits. Trigonometry, vectors, and AC wave analysis are also introduced. NOTE TO ELECTRICAL CONSTRUCTION STUDENTS: This course does NOT fulfill the union requirement of a year of high school algebra. Students looking to fulfill this requirement should enroll in MATS0305. Prerequisites: Successful completion of MATS0305 or satisfactory score on math entrance exam.

MATS1251 Statistics 4 cr.
Fundamental principles of inferential statistics are presented in lecture and supplemented with computer labs using Minitab software. Specific topics include descriptive and graphical statistics, fundamentals of counting and probability, probability distributions, sampling distributions, confidence intervals, hypothesis testing, linear regression, chi-square tests, ANOVA, and nonparametrics. Prerequisites: Successful completion of MATS0600 or satisfactory score on math entrance exam. Meets MnTC Goal 4.

MATS1300 College Algebra 4 cr.
This course develops a student’s ability to analyze and work with functions and graphs, as part of the preparation for a rigorous calculus sequence (taking this course together with MATS1320 is equivalent to precalculus). Topics include tests for symmetry, finding intercepts and asymptotes, constructing piecewise-defined functions, transformations, polynomial and rational functions, composite and inverse functions, and exponential and logarithmic functions. Techniques for solving linear, quadratic, rational, radical, exponential and logarithmic equations (with applications) are emphasized throughout the course. Systems of linear equations and matrix algebra are introduced, after which sequences and series are also briefly introduced. Prerequisites: Must achieve quality score on the Elementary Algebra or college level math test or successfully complete MATS0600. Meets MnTC Goal 4.

MATS1320 College Trigonometry 2 cr.
A foundation in trigonometry which, taken with college algebra, prepares students for a rigorous calculus sequence. Topics include right-triangle trigonometry, the laws of sines and cosines, the unit circle, trigonometric graphs with transformations, trigonometric identities, inverse trigonometric functions, trigonometric equations, polar coordinates, complex numbers and vectors. Prerequisites: Co-requisite: MATS1300 or instructor approval. Meets MnTC Goal 4.

MATS1350 Math for Liberal Arts 4 cr.
A college-level course designed to build a student’s appreciation of both the beauty and utility of mathematics as it is used in everyday life. Topics include voting and apportionment, fair division, scheduling and route planning, patterns of growth, and basic probability and statistics concepts including the bell curve. NOTE that this course does not serve as a prerequisite for any other math course. Prerequisites: Successful completion of MATS0600 or quality scores on elementary algebra or college level math tests. Meets MnTC Goal 4.

MATS1480 Technical Calculus 2 cr.
This course is designed for students in an engineering technology program who wish to learn how to apply calculus to practical problems. After a brief review of analytic geometry, students are immediately introduced to differentiation and applications of the derivative (such as related rates and optimization problems), followed by integration and applications of integration (such as work problems, hydrostatics, and center of mass problems). Modeling with differential equations, and their solution by computer, is also explored. Prerequisites: Successful completion of MATS1300 or satisfactory score on math entrance exam.

MATS1500 Beginning Calculus w/Trig. 4 cr.
This course is designed for students who wish to explore the foundations of calculus in a more mathematically rigorous way than in MATS1480. The course begins with college trigonometry topics, including the six trigonometric functions and their inverses, the law of sines/law of cosines, radian measure and the unit circle, trigonometric identities and solving trigonometric equations. Fundamental concepts of calculus are then developed, including limits and continuity, differentiation of polynomial, trigonometric, exponential, and logarithmic functions with applications, and integration by numerical and exact methods with applications. Mathematical modeling with differential equations is also introduced. Prerequisites: Successful completion of MATS1300 or satisfactory score on math entrance exam. Meets MnTC Goal 4.

MEDICAL ASSISTANT

MDAS1123 Laboratory Skills I 5 cr.
This course starts with an introduction to the clinical lab setting, lab safety, glassware, health care math, weights, measurements, quality control and quality assurance. It continues with basic testing techniques in chemistry, immunology, microbiology and simple hematology. The students will also learn to maintain the instruments and records for instruments used in this testing and create patient reports for this testing. Prerequisites: Concurrently MDAS1140.

MDAS1130 Clinical Procedures I 3 cr.
This course covers medical assisting duties that are the fundamentals required for medical asepsis, physical examination, federal regulations, emergencies, patient assessment including vital signs, and documentation skills. Professionalism and the study of law and ethics are taught at the beginning of the course. Assisting with physical exam, minor surgery procedures and sterile technique are presented at end of course. Students are expected to take a First Aid and CPR course prior to externship. Prerequisites: 30% or above on Reading CPT or successful completion of ENGL0123.

MDAS1140 Phlebotomy 1 cr.
This course will cover the process of collection of patient blood specimens and processing them for testing. Four different methods of collection will be learned and practiced. Students will be expected to participate both as a phlebotomist and as a patient. Difficult draw, adverse reaction and pediatric situations will also be discussed and simulated. The specimens collected will be handled and processed according to laboratory standards for accurate testing. Prerequisites: Concurrently enrolled in Medical Terminology and Anatomy.

MDAS1210 Disease/Medical Treatment, Including Nutrition 3 cr.
This course presents basic information about common disease conditions affecting various body systems. The causes, symptoms, and current diagnostic and treatment procedures will be presented. Basic nutritional concepts and practical applications are also included. Prerequisites: MDAS1101.

MDAS1222 Laboratory Skills II 4 cr.
This course builds on Laboratory Skills I using all the skills learned in that course and adding complete urinalysis, advanced hematology, and ECG theory and performance. A large part of this course will focus on microscopic analysis of urine and blood. The end of the course will simulate the operation of a POL from specimen collection to result reporting of all testing learned in Laboratory Skills I and II. Following this course the student will be prepared to function in a clinic laboratory. Prerequisites: MDAS1122.

MDAS1230 Clinical Procedures II 3 cr.
This course covers the expanded practice of Medical Assisting duties that are the fundamentals required for assisting with medical specialty exams and procedures, specimen collection, rehabilitation and therapeutic modalities. Prerequisites: MDAS1130;
Students are expected to take a First Aid and CPR course prior to externship. Students also complete program requirements in Clinical Lab procedures, Anatomy & Physiology, Medical Terminology, Pharmacology, Nutrition and Radiology.

**MDAS1250 Fundamentals of Radiographic Imaging** 2 cr.
This course is designed to: 1. Prepare students for the MN State Examination for x-ray operators. 2. Give students an overview of radiology technology and importance it plays in the medical field. 3. Provide students with the necessary information to understand the following: Medical terminology as related to the specialty of radiology, the design and proper use of x-ray equipment, the principles of radiation safety with protection to both the operator and the patient, and the importance of good, safe working habits. 4. Acquaint the students with the common radiographic procedures.

**MDAS1260 Medical Assistant Certification Review** 1 cr.
This course is design to help the student prepare for the National Certification test in order to use the CMA credential. Prerequisites: Completion of the Medical Assistant program.

**MDAS1270 Administrative Procedures** 3 cr.
This course is an overview of administrative duties that are performed by a medical assistant. Emphasis will be on clerical functions, bookkeeping procedures, insurance, claims, professional communications, legal concepts, patient instruction, operational functions, written and electronic medical records. Other topics included in this course will be office and human resource manager responsibilities. Prerequisites: OFFC1130 and HEAL1502.

**MDAS1701 Pharmacology and Math** 4 cr. for Medical Assistants
This course introduces the study of medications and their uses in the ambulatory care setting. Medical Assistant students will learn the techniques needed for administration of medications. Mathematics will be introduced with the goal of completing dosage calculations. Prerequisites: MDAS130, taken concurrently with MDAS1250.

**NANOTECHNOLOGY**

**NANO1001 Nano Technology Concepts** 3 cr.
This course provides an introduction to the emerging field of nanoscience and will begin with the basics of scale and focus on the micro and nanometer range. Nanotechnology is a result of the capability to observe and manipulate systems at the molecular or atomic scale. This course will discuss the implications of this technology as it applies to the traditional sciences as well as various commercial markets such as materials, electronics and biotechnology. The course will also address the challenges facing businesses who desire to integrate nanotechnology into existing products and for entrepreneurs who desire to benefit from this technology. Societal impacts will be discussed and evaluated.

**NANO1100 Fundamentals of Nanotechnology I** 3 cr.
The course provides an introduction into nanoscience and includes the history of nanotechnology and also an introduction into the tools used to study the world at the nanoscale. This course also covers a sense of scale, exponential notation, surface area to volume ratio, molecular and atomic structure and the various forces that are predominant at various scale levels (macro, micro and nano). Understanding of these concepts is fundamental to learning how nanoscale interactions and phenomena differ from those in our common macroscale world. Societal impacts along with a technology maturity model are also considered as they apply to nanoscience. Finally this first course provides specific study of the application of nanotechnology to biological areas such as the study of proteins, drug interactions, cell operation and ion channels. Sensing systems and newly developed diagnostic tools that are a result of understanding the biological system at the nanoscale are also discussed. Students taking this course should either have successfully completed a college biology course, physics course (first semester) and algebra or be taking these courses concurrently with the 1100 course. Prerequisites: Take concurrently with BIOL1500 and MATS1500.

**NANO1200 Fundamentals of Nanotechnology II** 3 cr.
The second semester course focuses on the material science, chemistry and physics aspects of the nanoscale. The course begins with the discussion of elemental material attributes and how environment can impact properties and performance of the starting material. Crystal structure and material properties are then discussed with an emphasis on differences in interactions and measurements at various scale realms. Using the current semi-conductor fabrication process as a foundation, students are introduced to the concepts and limitations of current photolithography and etching processes. New approaches toward electronic circuits are introduced as students gain an understanding of the current process and necessary operation concepts for today’s electronic devices. Finally, the concepts of fluid mechanics, optics, photonics and lasers are discussed with an emphasis on new devices and applications based on nanoscale properties. Students taking this course should either have taken chemistry and the second semester of physics or be enrolled in these courses concurrent with the 1200 course. Prerequisites: NANO1100 and take concurrently with PHYS1020, CHEM1500 and MATS1250.

**NANO1210 Computer Simulation** 1 cr.
This course will cover the application of computer simulation (modeling) to nanoscale systems. In addition, this course provides a visualization of concepts and interactions covered in NANO1100 and NANO1200. The course will cover applied statistics, design of experiments and impact of input parameter variations for biological and mechanical systems. Prerequisites: NANO1100, COML1400.

**NANO2101 Nanoelectronics** 3 cr.
This course will increase the depth of topics and discussion of those covered in NANO1200. Quantum physics will be reintroduced at a greater depth with coverage of band structure, conduction, diffusion, thin film response and optical properties from a modern physics perspective. Students will study, measure, evaluate and create fabricated structures such as nanowires, cantilevers and nano channels. Application of nanoscale principles will be used to discuss imprint lithography, etching, component block assembly of nanotransistors, quantum computing, magnetic and electron spin memory and holographic memory devices. Prerequisites: A grade of C or better in the following courses: NANO1100, NANO1200, and NANO1210. Concurrent registration in NANO2111, NANO2121, NANO21312, NANO2151 and NANO2970.

**NANO2111 Nanobiotechnology/Agriculture** 3 cr.
This course will increase the depth of topics and discussion of those covered in NANO1100. Students will investigate the potential of nanoscience in multiple biological applications including nanopore, nanoparticle and nanochannel structures, diagnostics and treatment. Emphasis will be placed on interactions between biological and non-biological systems and understanding biochemistry. Prerequisites: A grade of C or better in the following courses: NANO1100, NANO1200, and NANO1210. Concurrent registration in NANO2101, NANO2121, NANO2131, NANO2151 and NANO2970.

**NANO2121 Nanomaterials** 3 cr.
This course will increase the depth of covered topics and discussion of those covered in NANO1100 and NANO1200 courses. Subjects covered include single walled and multiwalled carbon nanotubes (fabrication, property measurement and compound formulation), creation of nanomaterials, particles and crystals by various processes including colloid suspensions, deposition, evaporation and plating. Properties of the nanomaterials (for example, the surface area, adhesion, conductivity etc.) and measurement techniques of nanomaterials will be covered. Interactions between organic and inorganic materials such as micro array techniques and bacteria molding will be discussed. Prerequisites: A grade of C or better in the following courses: NANO1100, NANO1200 and NANO1210. Concurrent registration in NANO2101, NANO2111, NANO2131, NANO2151 and NANO2970.
NANO2131 Manufacturing Quality Assurance 2 cr.
This course will cover multiple manufacturing methodologies (chemical solutions, electro filament, molding, coating, rolling etc. first in the traditional sense and second as these techniques apply to the nanoscale. Quality Assurance (Six Sigma) practices will be discussed with an emphasis on QA and reliability at the nanoscale. Design of experiments, measurements, approaches, data tracking, process improvement and statistical analysis and reporting will be discussed. Prerequisites: A grade of C or better in the following courses; NANO1100, NANO1200, and NANO2120. Concurrent registration in NANO2101, NANO2111, NANO2121, NANO2151 and NANO2970.

OFFC1000 Basic Keyboarding 1 cr.
This course is an introduction to basic keyboarding with emphasis on developing touch typing skills. Prerequisites: Basic computer skills.

OFFC1005 Keyboarding/Formatting 3 cr.
This course covers basic formatting for business documents, including letters, memos, reports, and tables. Straight-copy skill development for speed and accuracy will also be included. Prerequisites: A typing speed of 35 words per minute with five or fewer errors. **Articulated**

OFFC1007 Keyboarding for Advancement 2 cr.
The Skill Building Lab course is designed to allow students to upgrade keyboarding skills they already possess by working on additional warm-up, skill building exercises and timings until they reach their desired keyboarding speed. This course does not include any of the formatting in the lessons. Students can enroll in this course, work in the Flextime Lab or on their home computer using the key-boarding CD-ROM. Prerequisites: OFFC1000 or OFFC1005.

OFFC1010 Business English Skills 2 cr.
This course is an extensive, comprehensive study of English grammar, spelling, word usage, punctuation, number usage, capitalization and abbreviation rules, and proofreading.

OFFC1017 Technology for the Business Professional 3 cr.
This course is designed to advance the training of business and office students in the use of desktop publishing documents, real-world business projects, web site analysis, and web browser. Students will also learn the basics of creating, formatting and managing a Web site along with scheduling/organizational software. Prerequisites: COML1400 and OFFC1005.

OFFC1019 Receptionist Skills 2 cr.
This course incorporates the skills that are needed to be an effective receptionist. Topics such as: scheduling techniques using various software, typing skills, interpersonal communications, customer service.

OFFC1020 Office Procedures 4 cr.
This course helps the student develop those skills needed to work in the twenty-first century office. Topics include using computer hardware and software, setting up meetings and conferences, making travel arrangements, understanding telecommuting and virtual office structures, and developing career advancement techniques along with leadership and team building skills.

OFFC1023 Leadership for Administrative Professionals 1 cr.
Today’s workplace is changing and so is the role of the administrative professional. No longer subordinate to management, “admins” of the 21st century are business partners in meeting corporate goals and objectives. Learn what it takes to become an accomplished administrative professional and a recognized leader in your workplace.

OFFC1024 Meeting Planning for the Administrative Profession 2 cr.
Administrative professionals plan the majority of meetings under 100 people without formal meeting planning education or experience. This course provides fundamental knowledge and techniques to ensure success of planning small meetings.

OFFC1030 Word Processing 3 cr.
This course covers hands-on training for intermediate and advanced concepts of word processing using Microsoft Word 2003. Prerequisites: OFFC1000 or OFFC1005 or concurrent enrollment. **Articulated**

OFFC1040 Integrated Office Skills 3 cr.
This course is designed to integrate and reinforce the skills and knowledge learned in previous courses in the program. Project emphasis will develop the students’ awareness of work flow, chain of command, and interpersonal relationships in the office. The use of electronic tools and the integration of documents created in various Microsoft Office Suite programs is the primary focus of this course. Prerequisites: OFFC1020 and COML1400.

OFFC1045 Medical Terminology 2 cr.
This course is an introduction to building medical terms and learning the meanings. Students will learn combining forms, word roots, prefixes and suffixes, and how these word parts apply to building medical terms. Students will also learn common medical abbreviations and symbols. THIS COURSE IS THE SAME AS HEAL1502 **Articulated**

OFFC1052 Medical Transcription I 2 cr.
This course covers how to properly transcribe dictated medical material into a variety of usable medical documents by using word processing skills. Emphasis will be on authentic forms, using S.O.A.P. format, understanding medical language narrative, building speed and accuracy, proofreading and editing of material. An introduction to various laboratory tests and diagnostic procedures will also be covered in the course. Prerequisites: OFFC1005, OFFC1045, COML1400.
OFFC1053 Medical Transcription II 2 cr.
This advanced course covers producing a variety of medical documents by using medical terminology knowledge, word processing and transcription skills. Emphasis is placed on producing authentic forms, building speed and accuracy, proofreading and editing skills, and understanding and building on additional medical terms used in specialty areas. Prerequisites: OFFC1005, OFFC1045, COML1400, OFFC1052.

OFFC1054 Speech Recognition Transcription 2 cr.
This course is a continuation of medical transcription using speech recognition software. Emphasis will be on editing medical documents that are typically generated at a clinic or hospital site, such as: history and physical exams, consultation reports, surgery reports, pathology reports, laboratory reports and discharge reports. Reports will address the various specialty areas. Prerequisites: OFFC1005, OFFC1045, COML1400, OFFC1052, OFFC1053.

OFFC1057 Medical Office Procedures 4 cr.
This course is an overview of duties that are performed by a medical administrative assistant. Emphasis will be on using computer hardware and software. Topics include medical correspondence and documents, setting up meetings and conferences, making travel arrangements, telecommuting and virtual office structures. Students will also develop career advancement techniques, leadership and team building skills.

OFFC1130 MS Word I 2 cr.
This online-enhanced course covers the basics of using Microsoft Word software to create documents using a Personal Computer (PC). Topics include creating, editing and printing documents, using proofing tools, applying character formatting, using tabs stops, formatting paragraphs, creating envelopes and labels, working with columns, pictures, diagrams and charts, creating basic tables, using templates and wizards, comparing and merging documents and integrating Word with other Office applications. Prerequisites: Basic computer skills, including working in the Windows environment and file management (saving, retrieving or copying data files). A typing speed of 25 wpm is recommended, but not required. **Articulated**

OFFC1135 MS Excel I 2 cr.
This online-enhanced course covers the basics of using Microsoft Excel spreadsheet software to analyze financial data using a Personal Computer (PC). Topics include linking worksheets and workbooks, sorting and filtering, creating and using macros, using problem-solving, analysis and auditing tools, creating pivot tables and pivot charts, created advanced charts, importing and exporting data, sharing workbooks and integrating Excel with the Internet or an Intranet. Prerequisites: Basic computer skills, including working in the Windows environment and file management (saving, retrieving or copying data files) and completion of OFFC1135, MS Excel I or equivalent experience.

OFFC1190 Calculators 1 cr.
This course covers development of the touch system on the numeric keyboard calculators and microcomputer keyboards. Students will develop speed and accuracy using the touch system for the four basic arithmetic operations and solving business problems.

OFFC1200 MS Access II 2 cr.
This course covers continued development of Access databases and tables. It is an advanced-level course where learners will design multiple queries, use Wizards, and automate applications using macros. Prerequisites: OFFC1140 or equivalent.

OFFC1204 Data Entry 2 cr.
This course introduces the basic principles and techniques of data entry using personal computers. The student will develop a basic skill level of performance measured by speed and accuracy. Prerequisites: Basic computer skills, OFFC1000 and OFFC1190 or equivalent.

OFFC1225 Help Desk Support 2 cr.
This course will aim to prepare students to hold an entry-level position in the help desk industry or a company. Companies now want to attract individuals who have balance of business, technical, and people skills to help make the help desk successful.

OFFC1230 MS Publisher 2 cr.
This course covers the basics of Microsoft Publisher for Windows software using IBM networked computers. The student will learn to create, edit, save, delete, and print professional looking applications including business cards, flyers, brochures, and newsletters. The spell checker, auto features and Wizards will be introduced. Prerequisites: OFFC1150 or equivalent.

OFFC1255 MS Project 2 cr.
This course covers the use of MS Project software. The student will learn how to plan and create a project, create tasks, schedule assign resources, update status and use Project tools for communicating and sharing information across applications and the Web. The goals of this course track to the standards for the Microsoft Office User Specialist exam for Microsoft Project. Prerequisites: Basic computer skills (using windows and managing files) REQUIRED; COML1400 recommended. Keyboarding/typing: Typing speed of 25 wpm recommended.
PHILOSOPHY

PHIL1100 Ethics 3 cr.
This course is an introduction to the study of ethics. Students will be involved in discussions about the nature of values and exploring solutions to contemporary and historical moral problems across various cultures. Prerequisites: Suggested Accuplacer reading cut score over 78. Meets MnTC Goal 9.

PHIL1200 Critical Thinking 3 cr.
This course is an introduction to logic. Students will develop skills in critical thinking and will practice applying these skills to problems found in the workplace and other everyday environments. Topics will include the nature of argumentation, fallacies, categorical and propositional logic, deductive and inductive reasoning, and argument evaluation and construction. Prerequisites: Suggested Accuplacer reading cut score over 78. Meets MnTC Goal 2.

PHIL1300 Introduction to Philosophy 3 cr.
This course is an introduction to the traditional problems of philosophy. Students will discuss and criticize texts written by philosophers from a variety of periods and cultures. Emphasis will be placed on the practical value of the ideas explored. Prerequisites: Suggested Accuplacer reading cut score over 78. Meets MnTC Goals 6 & 9.

PHIL1350 Medical Ethics 3 cr.
This course introduces students to basic issues in medical ethics. Emphasis will be placed on the process of considering ethical theory, ethical principles, laws, and professional codes of conduct in the analysis of specific cases from the field. This course will be of special interest to students in nursing and dental programs though students in any program will find the study of medical ethics worthwhile. Prerequisites: Suggested Accuplacer reading cut score over 78. Meets Goals 6 & 9.

PHIL1400 World Religions 3 cr.
This class is about learning the central beliefs of the world’s major religions. Through writing, reflection, and presentation, students will explore the basic tenets of the world’s major religions, who founded the religions, their main writings or scriptures, and their philosophical underpinnings concerning such issues as definition of religion, the existence of God/gods, faith, reason, ceremonial practices, and their relationships with the world. Meets MnTC Goals 6 & 8.

PHYSICS

PHYS1100 College Physics I 4 cr.
This course is the first of two courses that cover non-calculus physics topics. These topics include: mechanics, concepts of energy and momentum, basic laws of motion, structure of matter, gas laws, heat and thermodynamics, waves and sound. Meets MnTC Goal 3.

PHYS1200 College Physics II 4 cr.
This course is the second of two courses that cover non-calculus physics topics. These topics include: fluids, thermal physics, direct and alternating currents, magnetism, light and optics, waves, and topics in modern physics. Meets MnTC Goal 3.

POLITICAL SCIENCE

POLS1000 Introduction to Political Science 3 cr.
Introduction to Political Science will present a broad introduction to the basic concepts, approaches, and areas of study of political science. Discussion and active debate of key political ideologies; liberalism, conservatism, socialism, communism, fascism, nationalism, feminism, and environmentalism will be central to the course. The class will also delve into the specific political systems and institutions of key members of the international community as well as consider contemporary American political issues. Meets MnTC Goal 5.

PRACTICAL NURSING

PNSG1000 Foundations of Nursing Practice I 2 cr.
This course introduces the LPN role in the nursing process and begins nursing skills to meet the basic human needs of clients. Supervised laboratory learning is included. Prerequisites: The student must meet admission requirements for nursing core courses, including Accuplacer scores. Concurrent enrollment or prior successful completion of HEAL1101 or BIOL2000 is required.
PNSG1050  Clinical Refresher I  1 cr.
This course prepares the returning student to begin clinical courses in the nursing major. The student will have the opportunity to practice nursing skills, and will be required to demonstrate competence in theory and skills. Prerequisites: PNSG1000.

PNSG1100  Foundations of Nursing Practice II  2 cr.
Students are expected to demonstrate progression in nursing knowledge and skill development. Procedures are practiced in the laboratory setting. Documentation procedures will be discussed and practiced. Prerequisites: HEAL1101, HEAL1150, PNSG1000, PSYC1100, PSYC1300, PSYC1400, and HEAL1400.

PNSG1250  Nutrition and Diet Therapy  2 cr.
This course provides a study of basic nutritional concepts. Diet guidelines and menu planning are emphasized using the Food Guide Pyramid. Therapeutic diets are discussed as related to specific disease conditions.

PNSG1350  Pharmacology  2 cr.
This course introduces the study of medications and their uses. Students will learn the techniques needed for administration of medications. Students will master the mathematical skills necessary to accurately calculate drug dosages including the metric and apothecary systems. Prerequisites: CPT Arithmetic Skills score of 56% or MATS0200, PNSG1000, and HEAL1150.

PNSG1400  Adult Health Nursing I  4 cr.
This course addresses diseases of the endocrine, respiratory, cardiovascular, and musculoskeletal systems. It includes pathology, medical treatment, nursing implications, nutritional aspects, and pharmacodynamics. The management of surgical clients, clients with pain, and care of the terminally ill is also discussed. Prerequisites: PNSG1000, HEAL1400 and concurrent enrollment or prior successful completion of PNSG1000, and PNSG1350; CPT: Reading Comprehension score 50% or successful completion of ENGL0123.

PNSG1500  Adult Health Nursing II  3 cr.
This course includes the study of conditions that affect the renal, neurological, reproductive, integumentary, sensory, and digestive systems. This includes the pathophysiology, symptoms, treatment, and nursing management for a select group of acute and chronic conditions. The nutritional aspects and pharmacodynamics are discussed. Course content will integrate critical thinking, math, and attitudinal aspects of nursing care. Prerequisites: PNSG1100, PNSG1400, concurrent enrollment or prior successful completion of PNSG1350, PNSG1500, and PNSG1540.

PNSG1530  Beginning Clinical  3 cr.
This course introduces students to beginning nursing practice. Students will provide basic nursing care for selected clients in clinical settings with instructor supervision. Students will collect data, perform basic nursing skills, and administer delegated medical treatments. Prerequisites: HEAL1101, PNSG1000, PNSG1100, PNSG1400, PSYC1100, HEAL1400, PSYC1300, and PSYC1400, concurrent enrollment or prior successful completion of PNSG1350.

PNSG1540  Clinical I  2 cr.
This course will offer the student the opportunity to perform nursing care for selected clients in an acute or subacute setting with instructor supervision. Students will administer medications and perform delegated medical treatments. Students will be expected to demonstrate progression in the performance of nursing skills. Critical thinking skills will be emphasized. Prerequisites: PNSG1530.

PNSG1560  Clinical Practice II  3 cr.
This course provides opportunities for students to perform nursing skills for selected acutely ill clients in clinical settings with minimal instructor guidance. Students will continue to implement the LPN role in the nursing process, and perform nursing care and treatments as learned in prior theory and laboratory courses. Independent functioning is encouraged along with medication administration proficiency. Prerequisites: HEAL1400, PNSG1100, PNSG1400, PNSG1500, PNSG1530, PNSG1800.

PNSG1570  Clinical Practice III  2 cr.
This course provides opportunities for students to perform nursing skills to select postpartum women and newborn infants in clinical settings with instructor guidance. Students may also assist in caring for children. Students will continue to implement the PN role in the nursing process and perform nursing care and treatments as learned in prior theory and laboratory courses. Prerequisites: PNSG1540.

PNSG1580  Clinical IV  3 cr.
This course provides students with the opportunity to function more independently in the clinical setting. Emphasis is placed on critical thinking and role transition from student to graduate nurse. Students are assigned to work as members of the health care team in the clinical setting. An instructor will be available to provide minimal guidance and support. Students will maintain contact with the instructor to discuss clinical practice issues. This course is the capstone clinical course in the Practical Nursing Program. Prerequisites: Prerequisites: Concurrent or successful completion of PNSG1800 and successful completion of all other nursing courses and clinicals.

PNSG1650  Clinical Refresher II  1 cr.
This course prepares the advanced-standing returning student to continue with clinical courses in the nursing major. Students will have the opportunity to practice nursing skills and will be required to demonstrate competence. Prerequisites: PNSG1100, PNSG1400, PNSG1530, or PNSG1540.

PNSG1750  Mental Health Nursing  2 cr.
This course explores mental health and mental illness. Maladaptive disorders, treatment, and nursing care are discussed. Transcultural and life span nursing issues of mental health will be addressed. Prerequisites: PSYC1350, Life-Span Development.

PNSG1805  Maternal and Child Health  2 cr.
This course prepares the student to care for maternity and pediatric patients. The obstetric portion of the course focuses on nursing care during pregnancy, labor/delivery, and postpartum, as well as care of the normal newborn. In the pediatric portion, the effects of illness and hospitalization on children are studied. Prerequisites: HEAL1400, PNSG1100, PSYC1200, PSYC1300, and PSYC1400, and concurrent enrollment or prior successful completion of PNSG1600, PNSG1570, and PNSG1580.

PSYCHOLOGY

PSYC1100  General Psychology  3 cr.
This general psychology course is an introduction and overview of the scientific study of behavior and experience. It includes topics like perception, learning, human development, intelligence, motivation, psychological disorders, social perception and group behavior. Meets MnTC Goal 5.

PSYC1200  Abnormal Psychology  3 cr.
This psychology course is an introduction and overview of psychopathology. This course discusses diagnosis, treatment and prognosis of patients with mental health disorders and issues impacting mental health professionals. Prerequisites: None (A previous course in General Psychology is recommended). Meets MnTC Goal 5.

PSYC1300  Child and Adolescent Psychology  3 cr.
This psychology course is an introduction and overview of the scientific study of child development from prenatal through adolescence. It includes topics like perception, learning, intelligence, motivation, developmental disorders, and parenting and peer influence on the developing child. Meets MnTC Goal 5.
PSYC1350  Lifespan Development  4 cr.
This psychology course is an introduction and overview of the scientific study of development throughout the life span from prenatal through old age, death, dying and bereavement from a developmental perspective. Meets MnTC Goal 5.

PSYC1400  Adult and Geriatric Psychology  2 cr.
This Adult psychology course is an introduction to adult and geriatric psychology from a lifespan perspective. This course examines topics from a developmental perspective, including sensation and perception, memory, intelligence and social cognition through adulthood. Meets MnTC Goal 5.

PSYC1450  Death and Dying  2 cr.
This psychology course is an introduction to the concepts and issues surrounding death and dying. It examines these issues from a theoretical perspective with attention to ethical and moral issues from a multicultural perspective and the impact of death, dying and bereavement throughout the lifespan. Meets MnTC Goal 5.

PSYC1600  Human Sexuality  2 cr.
This psychology course provides a comprehensive, up-to-date survey of the research findings and theories pertaining to human sexuality, and it helps the student apply this information to their personal lives. Meets MnTC Goal 5.

RAILROAD CONDUCTOR TECHNOLOGY

RCC1110  Orientation  1 cr.
This is an opportunity for students to determine if a career as a conductor is right for them. Students will shadow conductors in a working rail yard and experience for themselves the physical and scheduling demands of the job. Upon successful completion of this course, the student should be able to describe railroad organization and general operations, policies and practices to ensure railroad safety, and the basic responsibilities of conductors. 5 hrs. lecture, demonstration/wk. Selective admission program - see a counselor about special requirements.

RCC1120  Introduction to Conductor Service  4 cr.
This is an introductory course for the conductor service option within the railroad operations program. Upon successful completion of this course, the student should be able to describe railroad organization and general operations, policies and practices to ensure railroad safety, and the basic responsibilities of conductors. 5 hrs. lecture, demonstration/wk. Selective admission program - see a counselor about special requirements. Prerequisites: Admission to the DCTC railroad conductor program and completion of the one-week orientation. (RCC1110).

RCC1130  General Code of Operating Rules  4 cr.
This course provides an in-depth study of the General Code of Operating Rules (GCOR). Upon completion of this course, the student should be able to describe railroad organization and general operations, policies and practices to ensure railroad safety, and the basic responsibilities of conductors. 5 hrs. lecture/wk. Selective admission program - see a counselor about special requirements. Prerequisites: Admission to the DCTC railroad conductor program and successful completion of RCC1120 with a minimum grade of “C”.

RCC1140  Mechanical Operations  2 cr.
This course covers mechanical operations that relate to conductor service. This is the second course in the conductor option of the railroad operations degree program. Upon successful completion of this course, the student should be able to describe the importance and application of freight care mechanical policies and practices to ensure safe railroad operations. 2.5 hrs. lecture/wk. Selective admission program - see a counselor about special requirements. Prerequisites: Admission to the DCTC’s railroad conductor program and successful completion of RCC1120 with a grade of “C” or better.

RCC1150  Conductor Duties  2 cr.
Upon successful completion of this course, the student should be able to describe and apply railroad organization and general operations, policies and practices to ensure railroad safety, and basic responsibilities of conductor. This course includes safety and the general rules with which conductors must comply and teaches the techniques and administrative procedures conductors use on the job to perform safely and effectively. 2.5 hrs. lecture/wk. Selective admission program - see a counselor about special requirements. Prerequisites: Admission to the DCTC railroad conductor option and successful completion of RCC1140 with a minimum grade of “C”.

RCC1160  Utilization of Railroad Equipment and Safety Stand  2 cr.
This course is designed for persons interested in pursuing a career as a Railroad Conductor. The student will study and demonstrate the accepted standards of railroad equipment utilization. They will also demonstrate knowledge and application of railroad safety rules and techniques for moving box cars. Prerequisites: Current enrollment in Railroad Conductor Certificate.

REAL ESTATE/PROPERTY MANAGEMENT

PMGT101  Real Estate I  2 cr.
This course is an introduction to the exciting world of real estate that meets the requirements of 30 hours for pre-licensing education. Topics covered will include real estate and the law, the concepts of home ownership, the laws of agency and the brokerage business, forms of ownership, legal descriptions, and taxes.

PMGT102  Real Estate II  2 cr.
This course meets the requirements for the second 30 hours of pre-licensing education. Topics covered will include listing agreements, buyer representation, real estate contracts, principles of financing, fair housing, environmental issues, and closing the transaction. Prerequisites: PMGT101.

PMGT120  Introduction to Property Management  1 cr.
This course is an introduction to the profession of property management. The fundamental techniques used for preserving and increasing the value and integrity of investment real estate will be covered. Special emphasis will be placed on determining and developing strategies to meet the owners’ goals and objectives.

PMGT124  Real Estate III (Law)  2 cr.
This course meets the state requirement for Real Estate III. This course presents a practical look at the many laws that affect the ownership, sale, and management of real estate. Principles will be learned by reviewing and discussing actual cases. Special emphasis will be placed on agency law, fair housing, contract law, and any other laws and disclosures that real estate practitioners need to know.

PMGT125  Loan Application/Processing  1 cr.
This course covers the real estate loan process from pre-qualifying the borrower to determining which types of loans may be available and selecting which type would be best for the borrower. It includes a discussion of what the underwriters are looking for and how to prepare a loan for submission for approval. A must course for those in, or desiring to be involved in, the financing aspects of residential and commercial real estate.

PMGT127  Financing Instruments  1 cr.
This course covers the many types of financing instruments that are used today to finance the construction and purchase of real estate. It also looks at the specific clauses in mortgages and notes and the impact they have on borrowers and lenders. Special attention will be given to the many creative methods of financing real estate and how each may benefit the buyer and the seller.
PMGT1210  Appraisal Process  1 cr.
This course covers the process the appraiser must go through to comply with the requirements of the assignment. The student will learn that the process used is just as important as the results obtained by the appraisal. The student will also learn how to determine if comparable sales were “arms length transactions.”

PMGT1212  Residential Appraisal Workshop  1 cr.
This course reviews the principles of the appraisal process and provides the student with the necessary forms and knowledge to complete a residential single family appraisal report. This course also is approved for 15 hours of real estate and appraisal continuing education.

PMGT1213  Managing Residential Property  1 cr.
This course covers all the basics of managing residential income property. The student will identify the various types of properties, compare the pros and cons of each, and develop good check lists for developing a very complete system for managing property.

PMGT1214  Life and Safety Issues  1 cr.
This course covers issues necessary to protect the health, safety, and well being of occupants and property management employees of real estate investment properties. Topics covered are preventive maintenance inspections, proper disclosures, and procedures to follow when mishaps occur.

PMGT1215  Maintenance Management  1 cr.
This course covers the reasons for and the techniques of how to properly develop and manage a maintenance program that will protect the value of the asset being managed. We discuss the roles of property managers, resident managers, maintenance staff and outside service providers. Also discussed are methods of identifying risks and deciding which options might be available to deal with that risk.

PMGT1216  Managing Commercial/ Industrial Properties  1 cr.
This course covers the management and marketing of office buildings, industrial properties, and retail facilities. The student will compare the similarities and differences between these types of properties and residential investment properties.

PMGT1217  Risk Management and Environmental Issues  1 cr.
This course covers the reasons for and the techniques of how to properly develop and manage the various types of risk associated with managing residential property. We discuss the roles of property managers, resident managers, maintenance staff and outside service providers. Also discussed are methods of identifying risks and deciding which options might be available to deal with that risks.

PMGT1219  Leases and Tenant Relations  1 cr.
This course covers rental contracts beginning with the legal definitions of the various forms of leasehold estates and the rights and obligations the landlords and the tenants each have. The students will learn what steps to take to determine the qualifications of a prospective tenant and how to negotiate and create an acceptable residential lease agreement.

PMGT1224  Income Capitalization Analysis  1 cr.
This course compares the various methods of estimating the market value of income-producing properties. It includes the pros and cons of gross rent multipliers, cap rates, cash on cash returns on investment, and analysis of the impact financing may have on the value of a property to a particular investor.

PMGT1225  MN Landlord/Tenant Law  1 cr.
This course covers the rights and obligations between landlords and tenants.

PMGT1228  Community Association Management  1 cr.
This course covers one of the fastest-growing areas of real estate and property management, community association management. Recent statistics indicate that 50% of new residential properties being constructed are in some way a part of an owner’s association. This course is a real hands-on, practical course on what you need as a homeowner involved in an association, or a real estate salesperson involved in buying or selling townhomes or condominiums, or a property management professional.

PMGT1229  Subsidized Housing  1 cr.
This course covers Section 8 and other forms of subsidized housing. Prerequisites: Handouts will be provided.

PMGT1230  Income Property Marketing  1 cr.
This course covers all phases of income property marketing from defining goals and objectives to evaluating the results of that plan. Emphasis will be given to the importance of paying attention to the details of a good marketing plan, and the power of feedback and adjustments.

PMGT1232  Cash Flow Analysis  1 cr.
This course covers one of the most powerful tools a real estate investor/appraiser can use. The student will learn how to estimate future performance of income-producing property, and how to evaluate those future cash flows by using present day values. The course will cover capital gains, and the king of all tax shelters, the 1031 tax deferred exchange.

PMGT1302  Planning and Operating a Small Business  1 cr.
This course is an introduction to the designing, developing, and operating of a small business and/or an independent contractor practice. This is a must course for individuals beginning their careers in Real Estate, Appraisal, Financing, Insurance or Property Management. We start with how to develop a business plan, implement that plan, and conclude with how to make adjustments to keep up to changes in the business environment.

PMGT1304  Marketing Strategies for Small Business  1 cr.
This course covers one of the most important areas of operating a small business or independent contractor practices. The student will learn how to maximize results from a minimal amount of dollars by using proven marketing strategies. A must course for those entering the field of Real Estate, Property Management, Appraisal, Financing or Insurance.

PMGT1401  Real Estate Math and Calculator Basics  1 cr.
This course covers the basic operation of the Hewlett-Packard HP12C financial calculator. All of the most common applications used by real estate professions, appraisers, property managers and loan officers are covered in this course. This is definitely one of the most powerful tools available for the true professional.

PMGT2020  Negotiating for Agreement  1 cr.
This course covers the importance of developing negotiating skills and the basic techniques used in negotiating. We will look at everyday situations and discuss how these strategies can help us in the business world and in some personal situations.

SOCIOLOGY

SOCY1010  Marriage and the Family  3 cr.
This course embodies a survey of human relationships. This course will examine and explore both the practical side and the sociological side of human relationships. Topics include dealing with love, conflict, sexuality, parenting, relationship violence and gender roles. The focus of the course is to expose students to the cultural diversity of marriage and the family. To give students a fundamental understanding of the sociological perspective on this topic and apply a theoretical/historical perspective. Meets MnTC Goal 5.
SOCY1110 Introduction to Sociology 3 cr.
This course covers the basic concepts and terminology used in sociological studies. Sociology is broadly defined as the study of human social organization and social behavior including its forms and consequences. It will focus on the characteristics of human group life as they relate to the structure of the social environment and its influence on the individual. This course is designed to introduce students to the theories, concepts and areas of inquiry that typically characterize sociological analyses. Students will have the opportunity to examine the ethical/dimensions and issues facing political, social, and personal life as it relates to the topics in Sociology. Students will explore their own citizenship and find ways to apply their ideas and goals to civic learning and service learning through embracing facets of human society and the human condition. Meets MnTC Goal 5.

SOCY1150 Race and Gender 2 cr.
This course is designed to enable students to obtain a greater understanding of various minority/dominant relations in the United States. It will focus on class, gender, race/ethnicity, and sexuality from a historical and sociological side of human relationships. We will examine and explore both the theoretical and social approach to minorities and majority relations. Topics include historical perspectives, identity, social trends, oppression/exploitation of minority groups in the U.S., future trends in minority relations. The focus of the course is to expose students to the cultural diversity of the U.S. from every classification of minority. To give students a fundamental understanding of the sociological perspective on this topic and apply a theoretical/historical perspective. Global perspectives will be addressed. Meets MnTC Goal 5.

SOCY1210 Social Issues Changing World 3 cr.
An examination of the many ways in which the United States is interconnected with other societies in a changing world. This changing globalization process and related problems that threaten human well-being are studied from a sociological perspective. Meets MnTC Goal 5.

SOCY1250 Juvenile Delinquency 2 cr.
A sociological examination of juvenile delinquency and society’s response to delinquent youth. The juvenile justice system and the rights and responsibilities of children under law. Major topics include the historical foundations of delinquency, emphasis on micro and macro level of struggle in which delinquent behavior takes place, critique of current sociological theories on delinquency, sociological and social psychological causes of delinquency, juvenile justice response to delinquency, and citizen responsibility. Meets MnTC Goal 5.

SOCY1300 Introduction to Anthropology 3 cr.
Anthropology is the scientific and humanistic study of humankind in all its varieties and of human nature in its universal sense. This course introduces students to the four subfields of anthropology: archaeology, cultural anthropology, languages and culture, and physical anthropology. Students will learn to identify and apply anthropological methods of study through a sociological and anthropological approach to humanity. Meets MnTC Goals 5 & 10.

SPAN1200 Beginning Spanish II 4 cr.
This course continues the development of listening, reading, speaking, and writing skills that were introduced in Beginning Spanish 100. The course continues emphasis on the cultures of Spanish speaking countries. Major grammar focus includes a review of the present tense, reflexive verbs, regular and irregular forms of the preterit and imperfect, and discussion of travel, pastimes, food shopping, and your daily routine. Prerequisites: SPAN100 or its equivalent. (Students who were successful with 2 or 3 years of high school Spanish could begin with this class. Those with 4+ yrs. would be too advanced). Meets MnTC Goal 8.

SPEECH

SPEE1015 Fundamentals of Public Speaking 3 cr.
This speech course introduces students to the factors involved in becoming efficient communicators in both individual and group presentations. The course emphasis will be placed on audience analysis, research and organization, speech construction, and delivery techniques. Meets MnTC Goal 1.

SPEE1020 Interpersonal Communication 3 cr.
This course focuses on the practical and theoretical concepts of human communications and the styles used in personal, social and professional environments. Students will also acquire skills in critical thinking, perception, listening, verbal and non-verbal expressions and conflict resolution. Meets MnTC Goal 7.

SPEE1030 Intercultural Communications 3 cr.
This course studies the cultural differences and how it affects communication. Topics include definitions of communication; definitions of culture and diversity of cultural patterns; cultural variables influencing communication such as language, non-verbal behavior, perception, values, and beliefs; facts that facilitate or inhibit intercultural communication; and examination of American culture in comparison to other cultures. Meets MnTC Goals 7 & 8.

SPEE1042 Small Group Communication 3 cr.
This course provides instruction in theory and practice in the application of skills learned in the study of small group communication principles. Students will spend a substantial part of their course time participating in small groups, completing group projects, and analyzing group interaction. Meets MnTC Goal 1.

SPEE1050 Nonverbal Communication 2 cr.
This course includes facial expressions, tones of voice, gestures, eye contact, spatial arrangements, patterns of touch, expressive movement, cultural differences, and other “nonverbal” acts. Research suggests that nonverbal communication is more important in understanding human behavior than words alone—the nonverbal “channels” seem to be more powerful than what people say.

SUPERVISORY MANAGEMENT

INDS1000 Individualized Studies Career Exploration 1 cr.
This course is designed for the planning efforts of students who are enrolled in the Individualized Studies major. This interactive course is for individuals to uncover the career exploration process by understanding how personal characteristics develop interests, values and abilities as they relate to career choices. This course is required for Individualized Studies students and will result in a comprehensive plan for degree completion at the college.
SMGT1000  Principles of Supervision  3 cr.
Ease the transition to supervisor or bring yourself up to date with today’s supervisory/management practices. Study the role and responsibilities of supervisors including planning, organization, staffing, directing and controlling. Develop new skills in communication, correcting or rewarding performance and overall management of resources.

SMGT1022  Leadership  3 cr.
Learn concepts to become an effective leader in today's global business environment. Determine your leadership style and the implications of that style on workgroup performance. Incorporate ethics, corporate mission, vision and culture into a powerful leadership strategy. Enhance your ability to motivate and positively influence others in a increasingly diverse workforce.

SMGT1028  Management Effectiveness  3 cr.
Learn practical tools to manage time and stress. Develop habits to increase personal productivity and create an individual time management plan. Set priorities, delegate and reduce time wastes and stressors. Explore strategies to improve time utilization in workgroups.

SMGT1033  Business Law and Ethics  3 cr.
Examine workplace issues impacting supervisory responsibilities and explore the influence of ethics on individuals and organizations. You will be introduced to the American legal system. Understand civil, criminal, TORT, contract, employment, and labor laws and how they affect business.

SMGT1080  Introduction to Distribution Careers  1 cr.
This course is designed to provide students with an overview of distributorships. Included is an examination of the role of distributors bringing goods to market and adding value through distributor services. Network with industry specific professionals to learn about career opportunities in a growing market.

SMGT1081  Business Principles  3 cr.
This course is an introduction to the operation and organization of business enterprises and will provide students with a comprehensive and foundational view of business organizations, operations, finance, production, distribution, business law, diversity, and other business concepts and activities. Students will learn how these aspects of business enterprises are essential to our economic system and the global economy.

SMGT1082  Distribution, Operations & Logistics  3 cr.
Gain an understanding of management concepts, principles, and applications for effective operations of industrial distribution firms. Topics covered include concepts of rationale of discounting, financial systems, inventory management, purchasing, vendor evaluations, profitability analysis, warehouse management and future trends.

SMGT1160  Fundamentals of Meeting, Conference & Event Manage  2 cr.
Learn strategies to develop meaningful, well-organized conferences, meeting and special events, perfect for meeting planners experienced with logistics who want to develop the principles and techniques that form the foundation of meeting and event programs. Individuals interested in a meeting planning career or just starting in the field will want to build their career on the fundamentals included in this curriculum.

SMGT1161  Advanced Meeting, Conference, and Event Management  3 cr.
Whether you are interested in the field of meeting planning or already an experienced meeting planner, this is the hands-on, dynamic course you have been looking for to hone your skills and learn new techniques. This course delivers tricks of the trade and new twists while refreshing time-tested practices. Students will learn how to apply the Convention Industry Council meeting profile and request for proposal accepted practices. Prerequisites: SMGT1160 or advisor approval.

SMGT1162  Special Event Coordination and Management  3 cr.
Learn strategies to effectively procure, organize, implement and monitor the products and services that bring an event to life. This course focuses on event design basics, room set-up, event flow, entertainment, food and beverage options, and communication. Students will research and shop for a case study special event venue and design a boardroom presentation to present venue and theme recommendations to a boss or client; learn vendor selection techniques, and event specifications will be created and vendor/venue work orders reviewed. Get acquainted with music licensing, host liquor liability, the Americans with Disabilities Act (ADA), and preparation for a pre-convention briefing. Students will explore planner resources such as convention and visitor bureaus and destination management companies. Prerequisites: SMGT1161 or advisor approval.

SMGT1163  Event Promotion  3 cr.
Promote your meetings, events, festivals, tradeshows and conventions with the skill of an experienced event marketer. This course combines marketing and public relations expertise to make your event a success! Curriculum includes a business simulation and integrates key business skills such as critical thinking, team dynamics and communication.

SMGT1165  Introduction to Hospitality Management  2 cr.
If travel, hospitality and tourism are exciting and you have always fantasized about a career serving those away from home, this course is the introduction you have been looking for. Learn about management and operations of lodging and foodservices, within diverse organizational models such as private clubs, cruise lines, casinos and amusement parks. Students are also introduced to meeting, trade show and event management. Expectations and resources for careers in these service industries are integral to the course curriculum.

SMGT1166  Event Design  3 cr.
Meeting and event planners who want to increase production value of their events will find this course essential to achieving well-designed and orchestrated events. This course provides a thorough knowledge of event design principles, processes and practices. Students will learn about the various decorative elements used in special events and how production factors integrate to produce a winning event. Students will learn the basis of good design through study of design principles and practices. Through case studies students will learn techniques and resources to apply event design.

SMGT1167  Meeting & Event Sponsorship  3 cr.
Sponsorship dollars can mean the difference between financial success or ruin for an event. Sponsor visibility and benefit to the sponsoring organization can make or break their business. Establishing ROI for the event as well as the sponsoring organization is important to the symbiotic relationship between these entities. For the event planner, the value of sponsorships to the event and its attendees, as well as how to integrate the sponsorship into the event are key elements of success. Fundraisers, who frequently double as the event planner, need to know how to place value on sponsorships, maximize the sponsor experience and where to find more sponsors. Event planners and fundraisers will learn state-of-the-art methods for finding, securing and retaining sponsors in this class. Prerequisites: SMGT1160, SMGT1161, SMGT1162, SMGT1163, or instructor’s approval.

SMGT1168  Trade Show Management  3 cr.
Students new to exhibit management or experienced professionals who want to brush up on their skills will find this course essential to their career. Through the extensive case studies, students will learn how to manage exhibit operations from start to finish and become acquainted with marketing the trade show to exhibitors and attendees. Information and resources to manage essential trade show components such as site selection, floor plan layout, program planning, housing, registration and transportation will be explored.
SMGT1169 International Meeting Management 3 cr.
Globalization is changing how we do business, and its impact on meeting and event management is here to stay. Novice and experienced meeting planners who desire to work in the global arena will find the practical sourcing and planning knowledge found in this course to be the bridge to international business they have been looking for. International protocols are essential elements of the curriculum. This course focuses on the international elements of meeting planning and skills required to segue U.S. trained meeting planners to the international market including selection of international venue, sourcing service and liaison support, international venue contracts, shipping, exhibitions, insurance considerations, food service and communication.

SMGT1170 Meeting Planning for the Administrative Profession 2 cr.
Administrative professionals plan the majority of meetings under 100 people without formal meeting planning education or experience. This course provides fundamental knowledge and techniques to ensure success of planning small meetings.

SMGT1220 Work Teams 1 cr.
Develop the skills and knowledge to cultivate productive work teams. Identify the types and benefits of teams and work groups and the stages of team development. Learn to develop team mission, purpose, and goals. Apply techniques for team decision making and conflict resolution.

SMGT1231 Planning and Project Management 2 cr.
Learn how to plan and control projects from start to finish including: determining scope/objectives, scheduling/sequencing, budget, action steps, assigning personnel, authority/responsibility, standards, contingency planning and methods for monitoring and evaluation of the projects success. Use tools such as Gantt Charts, flow charts and others. Plan a work or personal project applying the skills and knowledge learned in class.

SMGT1240 Meeting Management 1 cr.
Learn to prepare for and conduct effective meetings. Develop purpose, desired results, agenda, ground rules and action plans. Identify appropriate facilities, equipment, and room arrangements for various types of meetings. Learn to use tools to facilitate group participation, decision making, and consensus building including how to handle disruptive behavior. Facilitate a meeting using the strategies and tools learned in class.

SMGT1242 Effective Business Communication 3 cr.
Learn and practice skills to communicate your message directly and effectively to generate the desired results, whether in a meeting, presentation or written media. Integrate multi-media to support your ideas. Assess your audience prior to communicating to maximize effectiveness. Facilitate group participation including handling disruptive behavior. Learn and apply skills in any situation to achieve win-win negotiations.

SMGT1250 Managing Customer Service 1 cr.
Identify how supervisors can plan for and support excellent customer service through developing a service strategy. Examine the impact of employee training and decision making authority on customer service. Analyze models of service for internal and external customers. Learn tools and techniques for gathering feedback and handling complaints. Consider the relationship between customer service and quality.

SMGT1260 Managing Teams 3 cr.
Develop the skills and knowledge to cultivate productive work teams. Learn to defuse resistance to change and foster support and involvement in developing a shared vision. Master conflict resolution and negotiation strategies essential for supervisors and others in leadership positions in fostering self managed work teams.

SMGT1405 Managing Performance 3 cr.
Manage employee performance by establishing performance expectations, identifying and providing needed training and support, monitoring performance, and providing formal and informal feedback. Practice conducting employee performance evaluations. Learn methods to take corrective action. Identify sources of inadequate performance - skills and knowledge, processes and systems, motivation and personal issues - and determine appropriate resolution to each. Coach and mentor good performers to higher levels.

SMGT1422 Supervision for Individuals with Limited English 3 cr.
Designed for those who speak English as their second language, this course is designed to help transition to supervision and management successfully. Learn cultural differences and how they affect motivation, communication, assertiveness and conflict resolution.

SMGT1441 Introduction to Human Resource Mgmt. 3 cr.
This course focuses on providing supervisors and managers an overview of the principles and practices of Human Resources Management functions in today’s organization, Compensation and Benefits, and Managing Employee Relations.

SMGT1601 Financial Management 2 cr.
This course provides the non-financial manager/supervisor an understanding of business accounting terms, basic accounting cycles, budgeting, cost control, income statements, cash flow analysis and other financial statements. Develop and apply skills in basic accounting principles and concepts to make sound business financial decisions.

SMGT1630 Presentation Skills 2 cr.
Develop a tool kit of presentation techniques that will serve you well in making both formal and informal presentations. Learn to assess and shape your audience. Develop an effective introduction, body, and conclusion. Become adept with using audio visuals. Discover the confidence of expressing your ideas to others with conviction, with control, and without fear.

SMGT1660 Introduction to Hospitality and Tourism 2 cr.
This course introduces students to the largest industry in the world – tourism and hospitality. Learn about management and operations of tourism and travel organizations such as visitor and convention bureaus, travel agencies, hotels/motels/resorts, airlines, cruise lines, tour operators, car rental companies, casinos, amusement parks and more.

SMGT1665 Lodging Operations 3 cr.
A lodging operation is comprised of many departments, each of whom must work together with precision to fulfill guest expectations. Course curriculum addresses the complete range of lodging operational considerations from the front lobby guest experience to the shipping and receiving dock.

SMGT1670 Lodging Systems and Technology 2 cr.
Technology is integral to success in today’s lodging environment. Students will be introduced to the many systems that ensure success, including monitoring room inventory, communication, staffing, yield management and data mining to predict consumer habits.

SMGT1675 Hotel Front Office Management 3 cr.
This course provides a hands-on tour of the front office in a lodging establishment. Curriculum includes a computerized simulation of the front office processes from guest check-in thru night audit. This is on-the-job training in the classroom.

SMGT1680 Hospitality Space and Logistics Management 3 cr.
The course provides a hands-on tour of the front office in a lodging establishment. Curriculum includes a computerized simulation of the front office processes from guest check-in thru night audit. This is on-the-job training in the classroom.
SMGT1685 Hospitality and Tourism Guest Services 2 cr.
Hospitality and tourism customers experience satisfaction when the combination of positive product and service exist. In this course students will learn listening techniques and customer service skills. Hospitality and tourism case studies, tapes and other media give students first-hand experience in providing quality guest services. Problem solving is an important element of the curriculum.

SMGT1690 Successful Sales and Closing Strategies 3 cr.
This course provides in-depth sales, proposal and presentation training. Customer satisfaction starts at the beginning of the sales process and continues through post-sale planning. The post-sale relationship is important to the sales cycle in order to retain the customer’s business. Curriculum includes hands-on hospitality and tourism case studies and simulations that address the sales cycle from first visit to retention planning and action.

SMGT1695 Hospitality Risk Management 2 cr.
Learn to recognize potential risks in the hospitality environment and to prioritize those risks for action. Application of practical strategies to management risks of property, property and goodwill are key elements of success. Learn risk management techniques using case studies and real-life scenarios.

SMGT1776 Organizational Behavior 3 cr.
Review, discuss, and analyze what makes an organization of any size and purpose, successful. Examine the ways that systems and values help to make up the dynamics of an organization’s culture. Discuss the ways individuals work inside an organization and ways they influence those around them. Consider in detail what this all means in the context of today’s call for constant change.

SMGT1825 Interpersonal Effectiveness 2 cr.
Introduce managers, supervisors and employees to a variety of interpersonal communication techniques that will strengthen respect and relationships. Practice skills in active listening, giving and receiving feedback, assertive communication, handling emotional behavior, dealing with multi-culturalism and valuing differences and interpret non-verbal communication. Learn to identify and remove communication barriers. Identify potential conflict situations and formulate strategies to resolve them.

SMGT1875 Training and Developing Employees 3 cr.
Consider employee training and development needs from orientation through progressive job training. Learn how to determine training objectives, plan, prepare, conduct, and measure benefits of work group training. Assess learning styles of trainees, and learn effective training techniques to reach a wide range of learners. Design and deliver a work-related training session. Learn to coach work group members toward improved performance. Identify guidelines and steps for coaching. Develop individual improvement plans.

SMGT1950 Mentoring 1 cr.
Learn how to develop a corporate Mentoring program. Analyze corporate cultures to determine what level of support is needed for developing an internal or external Mentoring program. Recognize the differences between mentoring, coaching, managing, and supervising. Learn how to identify, select, train, and match mentees, mentors and coordinators. Develop an action plan that ensures corporate buy-in. Develop a plan for launching your program with support materials and components in place. Develop a system of feedback which incorporates confidentiality. Review and evaluate mentoring programs.

SMGT1970 Casino Operations 3 cr.
This course provides a comprehensive view of casino operations. From the slot club, cage operations, casino floor design and into the management office, students will be guided through the operations of a casino and introduced to patronage motivation. Prerequisites: None.

SMGT1975 Casino Products: Protections and Probabilities 3 cr.
From fraud and theft protection, to understanding the theory of various casino games, this course includes mathematical principles, probability theory, basic accounting and reporting information necessary for success in the casino industry. Prerequisites: None.

SMGT2001 Management Skills I, Foundations in Management 3 cr.
This course is part I of three parts of the process of obtaining certification as a Certified Manager, from the Institute of Certified Professional Managers.

SMGT2002 Management Skills II, Planning & Organizing 3 cr.
This course is part 2 of three parts of the process of obtaining certification as a Certified Manager, from the Institute of Certified Professional Managers. Gain knowledge planning and organizing, and apply skills related to planning and strategy, operations management, project management, decision making, team management, organizational structure and human resources management. Prerequisites: SMGT 2001.

SMGT2003 Management Skills III, Leading & Controlling 3 cr.
This course is part 3 of three parts of the process of obtaining certification as a Certified Manager, from the Institute of Certified Professional Managers. Gain knowledge leading & controlling, and apply skills related to leadership principles, empowerment and delegation, managing change, conflict and culture, operations control, quality management and financial management. Prerequisites: SMGT 2002.

SMGT2015 Accelerate Your Learning Potential 2 cr.
Effectively apply your learning power to its greatest capacity. Learn a variety of principles, tools and techniques for learning more in less time and deeply retaining it. Learn study tools for note taking, and test taking. Manage your emotions to keep stress low and motivation high. Apply learning styles, multiple intelligences, mind mapping and other tools to help you learn the way to learn best and accomplish your goals. Access how accelerated learning principles can be applied into your work and personal life. Prerequisites: Course required for students enrolled in the SMGT evening program.

SMGT2046 Fundamentals of Management & Diversity 4 cr.
This course will provide students with the background and theories of supervision and management, and the key skills required to be a successful supervisor, manager and entrepreneur. Learn to effectively manage a ever increasing diverse workforce.

SMGT2105 Managing Diversity 3 cr.
Identify what it takes to become a diversity leader in your organization and community. Learn the complexities of managing today’s diverse workforce. Explore the evolution of diversity from the past, present and future perspectives. Assess personal, group and organizational viewpoints toward diversity and diversity initiatives. Examine the legal aspects related to discrimination, affirmative action, bias and stereotyping in human resource activities. Implore effective communication methods to build relationships and understanding. Utilize the differences, similarities and tensions of individuals and groups into a collaborative and competitive advantage for your organization. Eliminate barriers affecting equal access and professional growth and mobility.

SMGT2110 Leading a Multicultural Workforce 3 cr.
Learn how to adapt global and multicultural contexts into traditional leadership theories. Develop assimilation strategies that do not lose the many advantages that diversity offers. Examine the leadership challenges regarding ethics, social responsibility, accountability and training in a multicultural environment. Choose appropriate leadership styles to build teamwork and collaboration. Raise the awareness of the workforce at all levels to leverage the value of diversity.
SMGT2115 Multicultural Mentoring I 2 cr.
This course explains what multicultural mentoring is and how it can be used as an effective tool to develop individuals, foster teamwork, multicultural understanding and organizational effectiveness and productivity. This course places the student in the role of mentee and mentor. As a mentee, the student will learn how to develop and acquire new skills and abilities through a multicultural mentorship partnership. A mentor/mentee agreement will develop a path to growth opportunities. This course is a prerequisite for SMGT2116, Multicultural Mentorship II.

SMGT2116 Multicultural Mentorship II 1 cr.
This course builds on what multicultural mentoring is and how it can be used as an effective tool to develop individuals, foster teamwork, multicultural understanding and organizational effectiveness and productivity. This course places the student in the role of mentee and mentor. As a mentor, you will utilize skills learned to help their mentee succeed. A mentor/mentee agreement will develop a path to growth opportunities.

SMGT2120 Multicultural Conflict Resolution 2 cr.
This course focuses on building multicultural conflict resolution skills needed to improve the workplace relationships by understanding the concept of cultural clashes, practicing conflict management prevention, mastering negotiating skills across cultures, building multicultural communications skills, developing mediation techniques, understanding the conflict management continuum resolving multicultural conflict, and comprehending the Alternative Dispute Resolution progression.

SMGT2125 International Business 3 cr.
Understand the growing influence of globalization on all areas of business. Assess the global business environment which includes trade, outsourcing, off shoring, legal, technological, political and social and ethical perspectives. Learn the affects of cultural contexts in negotiation and management. Explore strategies for international and global business.

SMGT2126 Import and Export 3 cr.
Students will realize the reasons, risks and rewards of international trade, with a comprehensive focus on the components of import and export operations. Students will explore research on locating markets and product sources. Curriculum includes import and export logistics, including documentation, transportation, and legal regulations.

SMGT2127 International Enterprise Transactions 3 cr.
Understand different forms of international business transactions. Examine the role of business organizations in these transactions and focus on international dispute and how business disputes are resolved. Comprehend the role of international trade agreements such as NAFTA, ASEAN, and MERCOSUR, and their impact on international enterprise transactions.

SMGT2128 Trade Finance 3 cr.
Obtain basic understanding of financial issues faced by a firm operating in a multinational environment. Topics include: balance of payments concepts, exchange rates theories, and currency markets. Interpret actual events in the economy and explain actual economic and financial developments, with their implications for international financial transactions.

SMGT2129 Global Supply Chain Management 3 cr.
Study origins, evolution, current state and trends of supply chain. Understand the critical components of supply chain: Forecasting, Procurement, Logistics/Transportation, and Sales and Inventory. Explore strategies for global business. Improve students personal, communication, leadership, negotiation and presentation skills.

SMGT2129 Global Supply Chain Management 3 cr.
Study origins, evolution, current state and trends of supply chain. Understand the critical components of supply chain: Forecasting, Procurement, Logistics/Transportation, and Sales and Inventory. Explore strategies for global business. Improve students personal, communication, leadership, negotiation and presentation skills.

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SMGT2129 Global Supply Chain Management 3 cr.
Study origins, evolution, current state and trends of supply chain. Understand the critical components of supply chain: Forecasting, Procurement, Logistics/Transportation, and Sales and Inventory. Explore strategies for global business. Improve students personal, communication, leadership, negotiation and presentation skills.

SMGT2950 Prior Experiential Learning 1 cr.
Portfolio Development
This course will guide students through the creation of an individual degree plan for the Supervisory Management AAS degree program or other participating programs at the college. Students will assess their previous education, prior learning from work and life experiences and develop a portfolio of prior learning which will be submitted for review. Any credit(s) awarded will be in compliance with the standards, principles, and procedures as published by the Council for adult and Experiential Learning. Prerequisites: Program advisor approval.

VISUAL COMMUNICATIONS

VCOM1001 Intro Visual Communications 2 cr.
This is an introductory course that prepares all students for entry into the Visual Communications field. General overviews will be given of the visual arts, photography and graphic design fields. Students will learn basic computer operation, how to use the local network, and learn general operational methods used in the Visual Communications Department. Additionally, students will learn to prepare, mount and display artwork. All these skills are a prerequisite for other courses in the Visual Communications Department.

VCOM1006 Color Theory and Applications 2 cr.
This course covers the historical background of color. Artist colors are explored using terminology in conjunction with painting mixing to reflect the terminology. Creative color assignments are given to enhance their knowledge. Commercial reproduction of color will be addressed with the translation of artist colors to print colors. Color interpretations and trends are also discussed. Digital color, corrections on digital files and how color works on the computer monitor and web will be covered as well as printing from digital files. Color management of files will also be included.

VCOM1010 Intro Photoshop 2 cr.
This is an introduction of the basic tools used for image manipulation in Adobe Photoshop. Image modification and compositing, use of the scanner, and mastery of Photoshop tools are stressed. Image adjustment and enhancement and layer masks are also taught. “Articulated”

VCOM1015 Layout I 2 cr.
This course covers development of page layout and basic graphic design processes. It provides an overview of the graphic design profession and a historical framework for modern graphic design/page layout practices. The student will overcome visual design problems by employing design elements and principles used as the foundation of any design work. It includes the “how to’s” of creating effective page layout for print and screen. Practical applications of typography and use of visual concepts will be explored. This course will utilize hand layout tools exclusively.

VCOM1021 Intro Photography 3 cr.
In this course the student will learn how to use all the manual 35mm camera controls to create good black and white photographs. We will practice using the motion and depth-of-field controls in different kinds of outdoor and natural lighting conditions. The student will combine the knowledge of different films and exposure techniques with the study of artistic composition to produce-pleasing images. Discussion of basic accessories and special techniques will round out the camera knowledge.

VCOM1025 Law and Ethics for Visual Communications 1 cr.
In a world of digital information, new opportunities and markets are opening daily. Now, more than ever, visual communicators must understand the need to understand their legal and ethical responsibilities, both as business people and artists. This course will explore the rights and responsibilities of individuals involved in collecting, producing, and selling images.
VCOM1030 Visual Design Fundamentals 3 cr.
This course will take the principles of design along with art fundamentals and apply them to the development of graphic design projects. Students will be introduced to basic drawing techniques to illustrate their ideas. The elements of design and color will be studied. Presentation skills and professional attitude will be practiced. Specific emphasis will be made in developing creativity and overcoming creative blocks. The student will be able to apply these design fundamentals to all aspects of the visual communication field. **Articulated**

VCOM1032 Interactive Design Fundamentals 2 cr.
This course will explore the fundamentals of design, development and delivery of computer-based multimedia. Students will be introduced to basic HTML, image preparation and web page tools/software. The elements and principles of design along with general presentation skills and professionalism will be practiced. Special emphasis will be placed on the use of multimedia in the visual communications industry and the structure of the Internet. Students will be able to create a simple website with HTML and upload it to a server at the end of the course. Prerequisites: VCOM1040.

VCOM1040 Basic Drawing 3 cr.
This course is designed to provide the artistic student the basics of drawing. General methods, mediums and styles will be explored. The elements and principles of art and design will be applied to various drawing projects. Uses of drawing in design are included in the focus. Students will study presentation and preservation of original artwork. **Articulated**

VCOM1051 Scale and Perspective Drawing 2 cr.
This beginning drawing course covers drawing techniques for drawing linear perspective in a rapid manner. Drawing without tools is emphasized although tool use is explained and demonstrated by the student for both sketchbook drawing and drafting board drawing. One, two and three point perspective drawing is explained. Drawing style, composition and use of color are also explained.

VCOM1060 Creative Problem Solving 3 cr.
In this course various methods of solving creative problems will be explored through design projects. The elements and principles of design will be utilized applying methods of creative problem solving.

VCOM1080 Photo Styling 2 cr.
Photo styling involves the art of composing, arranging, and preparing a photographic set for the photographer. Many fundamentals of Photo Styling concepts come by way of historical movements in art history. Successful photo stylists also rely upon and refer to artistic conventions such as scale and perspective, color theory, composition, proportion, and form. Additionally, stylists will have a working knowledge of photography, lighting, and post-production methods. In this course students will learn about the role of photographers, stylists, and art directors. Students will apply art theory and technical concepts to practical styling projects such as food photography, “table-top” product photography, and interior architectural photography.

VCOM1095 Illustration Fundamentals 3 cr.
This course covers the basic concepts in illustration techniques. Projects will be assigned to develop illustration skills and uses of various media. The history of illustration and general design styles will be examined. Visual concept development and communication through illustration will be explored through research and application. Prerequisites: VCOM1040.

VCOM1300 Intro to Adobe Lightroom 2 cr.
Adobe Lightroom helps photographers organize and manipulate their images. It works hand in hand with Adobe Photoshop and Bridge but adds many new options and features. This course will explore the power and features of Lightroom and how it can import, catalog, save and organize thousands of images and save the photographer a lot of time upfront in the workflow. Then Lightroom’s develop and print modules can modify, manipulate and improve digital images in a non-destructive manner. We will wrap up this class with practice outputting images to web, to CD and to labs to create products and images for client viewing. Bring a few hundred images to class for hands-on practice during this class. Prerequisites: VCOM1001 or equivalent computer experience.

VCOM1310 Printing Lab I 2 cr.
This course serves as the first half of the VCOM 1540 - Intro Custom Printing. The emphasis will be on the operation of the black & white enlarger and covers the use of polycontrast filters and other print enhancement techniques to produce high quality enlargements. Various projects will help the student develop a keen eye for density and contrast judgments. The second half and sequential course to this one is VCOM 1320.

VCOM1320 Printing Lab II 2 cr.
This photography course serves as the second half of the Introduction to Custom Printing (VCOM 1310) and picks up where Printing Lab I leaves off. After reviewing and practicing the necessary skills, techniques and equipment needed to produce good b/w enlargements a thorough discussion of color theory will be covered. Projects in color correction and judgments will constitute the main areas of study in this course. Prerequisites: VCOM1310.

VCOM1330 Color Printing Lab I 2 cr.
This photography course serves as the equivalent to the first half of VCOM 1560- Custom Color Printing. The student will be introduced to custom color enlarging techniques on different color papers to become more proficient at color and print quality judgment. Techniques on dodging, burning and vignetting will be covered as well as other techniques. Prerequisites: VCOM1310 or VCOM1541 and VCOM1320.

VCOM1340 Color Printing Lab II 2 cr.
This photography course serves as the equivalent to the second half of VCOM 1560- Custom Color Printing. A custom printing technician needs to be able to produce large, professional quality color enlargements ready for selling and displaying. This course prepares the student for such a task by covering large format custom enlarging techniques on different color papers as large as 30 x 40 inches. Techniques on enhancing, mounting, matting, texturizing and displaying large prints will be covered. Prerequisites: VCOM1330 and VCOM1541. Varies.

VCOM1370 North Shore Photography Workshop 1 cr.
This course is a 3-day field trip to the North Shore of Minnesota. Here we explore the tips and techniques of effective nature photography. We spend part of the time in informative lectures and slide shows held on site with the rest of the time spent in the field under the guidance of the instructor. Topics such as advanced composition, creative use of filters, lens and viewing angles, difficult metering situations and effective equipment operation are covered throughout the workshop. Students will come away with a new appreciation and understanding of nature photography as well as some great images of one of Minnesota’s most beautiful areas. Repeatable for up to three credits. Prerequisites: VCOM1021 or equivalent.

VCOM1380 Basic Photography 1 cr.
Using the 35mm camera and most of its controls will be the basis for this on-line photography course. The student will learn how to create good exposures through the use of f-stop and shutter speed controls in natural lighting conditions. In this course we will concentrate on using the depth-of-field controls in emphasizing creative image control. The student will combine the knowledge of different films and exposure techniques with the study of basic artistic composition to produce pleasing images.
VCOM1410 Intro Illustrator 2 cr.
This course is a comprehensive look into the drawing tools of Adobe Illustrator, a computer illustration application. Students will develop skills using the basic drawing tools. Use of the transformation tools, templates, layering, spot and process color and file output will be emphasized. Prerequisites: VCOM1001 recommended. **Articulated**

VCOM1415 Typography Fundamentals 2 cr.
Students will learn the basics of typography. Measurement, type fitting, design with type and an appreciation of type in the design process will be stressed.

VCOM1422 Print Process I 2 cr.
Students are introduced to the history of print and explore a variety of print processes (flexo, letterpress, lithography, digital, etc.) A general overview of print process will include: basic paper characteristics and selection, imposition and folding, color keys, and job work flow.

VCOM1430 Intro InDesign 2 cr.
Students will become familiar with Adobe InDesign as an electronic publishing program. Emphasis will be placed on software operation. Use of text, graphics, tabs, style sheets, and master pages will be incorporated into projects. Prerequisites: VCOM1001 recommended.

VCOM1435 Proofreading Fundamentals 1 cr.
Students will learn basic proofreading techniques. Proofing marks will be learned and used to mark text. Proofing techniques will be used to identify proofing errors.

VCOM1440 Vinyl Signage 1 cr.
Students will become familiar with the vinyl sign maker using FlexiSignPro software. Basic signage will be discussed. Projects will include single and multi-color vinyl. Transfer, weeding and registration will be covered. VCOM1410 recommended.

VCOM1515 Photo Lighting Techniques 2 cr.
The essence of good photography is the ability to recognize and expose for different lighting conditions. This course covers the use of all types of light meters under all different lighting conditions from indoor flash to outdoor and difficult light. This will be a study of the properties of light ranging from color temperature to direction and quality of both natural and artificial lights. Other related areas include how different film, filters, and lenses react to these lighting conditions. Prerequisites: VCOM1021 required (may be taken concurrently).

VCOM1520 Basic Processing & Monitoring 3 cr.
In this course the student will be introduced to the fundamentals of black/white and color film and paper processing. With the emphasis on quality, we will cover how processing, both by manual sinklines and by automatic machines, affects the quality and consequently the salability of the final print. Four different b/w processes and three color developers will be covered. The plotting and monitoring of all these processes will be the heart of this course.

VCOM1525 Basic Darkroom Techniques 4 cr.
In this course the student will be introduced to the fundamentals of black/white film and paper printing and processing. With the emphasis on quality, we will cover how film processing, by both manual sinklines and automatic machines, affects the overall quality and salability of the finished b/w print. The science behind the proper developing and use of photo materials will be discussed, touching on EPA and OSHA concerns, creative use of different papers and enhancement techniques to explore niche markets, and techniques will be explored to complete the skills needed to be a successful and creative darkroom artist.

VCOM1530 Copy and Restoration 1 cr.
Old photo restoration, retouching, toning and reproduction are the main emphasis of this course. The student will experience the gratification of copying old black/white and color photographs by using copy camera and retouching techniques to repair minor aging and damage. Hand coloring and defect correction through the use of oils and pencils will be covered. Prerequisites: VCOM1021 required.

VCOM1541 Introduction to Custom Printing 3 cr.
Beginning with the basic operation of black and white enlarger, this course will cover all the skills necessary to create prize-winning enlargements. Projects include variable contrast printing, print enhancement techniques, negative techniques, different papers and textures, and various negative to print size formats. An introduction to color printing will include a thorough discussion of color theory and then the practical application of color adjustment in the making of contact sheets and high quality enlargements.

VCOM1550 Machine Printing Systems 3 cr.
This course covers the aspects of using semi-automatic machines for printing high quality proofs and enlargements. The emphasis will be on the techniques and concepts of equipment operation, set-up, and color balancing. Projects will include the handling of difficult negatives, color copy negatives, package printing and color correction techniques on at least four different types of printers. A good understanding of color theory and the ability to recognize and correct color problems will be at the heart of all the projects and discussions. Prerequisites: VCOM1520, VCOM1540.

VCOM1561 Custom Color Printing 3 cr.
The ultimate test of a custom printing technician is producing large, professional quality color enlargements ready for selling and displaying. This course prepares the student for such a task by covering large format custom enlarging techniques on different color papers as large as 30x40 inches. Techniques on enhancing, mounting, matting, texturizing and displaying large prints will be covered. Prerequisites: VCOM1310 or VCOM1341 and VCOM1320.

VCOM1565 Color Printing Systems 4 cr.
This course builds on the printing skills from the Basic Darkroom Techniques course by providing the theory and practice of traditional color printing by both automatic and custom printing equipment. At the heart of this course is a thorough understanding of color theory, color application, color recognition and color adjustments and management as it relates to the production of high-quality color photographs in all facets of the industry. The student will use numerous custom and semi-automatic color printing devices to produce color photographs ranging from wallets to 3-foot enlargements. The ultimate test of skills in this area is for a photographer or photo technician to be able to recognize and create a high-quality photograph in order to stay competitive in the industry. Prerequisites: VCOM1525.

VCOM1570 Portrait Photography 2 cr.
This course covers the use of studio lighting and cameras to produce professional looking portraits. Emphasis will be on the use of medium (120) format camera and film to capture images of people. A critical skill in this area is the ability to use the correct lighting to enhance the character and features of the customer. Projects will also include the use of gray cards, light meters, and posing techniques. Prerequisites: VCOM1021, VCOM1515.

VCOM1580 Intro Digital Imaging 2 cr.
This course introduces the student to the technology needed to capture a digital image, manipulate it and then output the image back to a hardcopy. As the technology changes we will incorporate it into this course. Discussions of concepts, philosophy and industry impact of this technology will be held in each class session to help the student to understand how this technology will impact the student’s careers and the industry as a whole. Projects will include the operation and discussion of digital cameras, photo CDs, flatbed and slide scanners, Macintosh computers, b/w and color printers and film recorders. At least three different imaging software will be used and evaluated during the course. Prerequisites: VCOM1001. **Articulated**
VCOM1710 Reporting 2 cr.
Reporting is a course on the basics of writing and reporting for newspapers and magazines. Students will learn how to gather and organize the elements of a story using the inverted pyramid and Associated Press style. Grammar, caption writing, editing, layout, law and ethics will also be covered.

VCOM1720 Photojournalism 2 cr.
Photojournalism involves telling stories to a mass audience with the use of images. In this course students will be introduced to studio and location photography skills and related skills such as previ- sualization, use of traditional and digital cameras, cutline writing, layout, visual storytelling, Associated Press style, and business skills.

VCOM1730 Advanced Photo Lighting Techniques 2 cr.
This course builds on the skills learned in Photo Lighting Techniques to increase the student’s knowledge of on-location lighting techniques, advanced studio lighting, and use of multiple lighting sources. Students will use a hands-on approach to apply ambient and artificial lighting techniques to real-life situations in portrai- ture; still-life subjects; and architectural subjects. Portrait and still-life lighting techniques will cover lighting as it relates to com- position with an emphasis in using lighting to bring emotion and a flattering rendition of the photographic image. Prerequisites: VCOM1021, VCOM1515 or instructor approval.

VCOM1740 Macro Photography 2 cr.
Macro or close-up photography can be a difficult skill to master, even though it is used in many different areas of the photographic industry. Nature photography, medical and forensic photography, the copy and restoration industry, industrial and commercial pho- tography are just some of the career clusters that benefit from good macro photography skills. Real-life projects in this course will include the use of special macro lenses, ring flashes, and spe- cial lighting techniques to capture high-quality close-up images. Prerequisites: VCOM1021, VCOM1515, or instructor approval.

VCOM2035 Layout II 3 cr.
This course covers development of advanced page layout skills. It includes creating effective marketing pieces through the practi- cal application of typography and composition. The use of visual concepts will be explored. Development and completion of a va- riety of assignments will place emphasis on visual communication methods including the use of hand tools and the computer as page layout implements. Prerequisites: VCOM1015.

VCOM2085 Drawing for Illustration 2 cr.
In this course the students will study and apply methods in commercial illustration. Advanced drawing skills and techniques for illustration will be developed and various media uses will be explored. Students work to develop individual styles through advanced assignments. Prerequisites: VCOM1095.

VCOM2095 Painting for Illustration 2 cr.
In this course the students will study and apply advanced methods in commercial illustration. Painting skills and techniques for illustration will be developed and various media uses will be explored. Students work to develop individual styles through advanced assignments. Prerequisites: VCOM1095.

VCOM2400 Advanced Photoshop 3 cr.
This course builds on the tools and techniques learned in VCOM 1010 (Intro PhotoShop). The student will use and become more proficient with all the tools used to modify photographs. Some of the special effects power of these software will be introduced during this class. Emphasis will be placed on using this software to produce commercially acceptable photographs and advertise- ments, as well as hard copy outputs. Prerequisites: VCOM1010.

VCOM2415 Advanced Electronic Publishing 3 cr.
Students will create electronic publishing projects using InDesign or QuarkXPress. Emphasis will be on advanced publishing tech- niques, use of color, color separations, and design of portfolio quality projects. Prerequisites: VCOM1400 and VCOM1430.

VCOM2420 Advanced Computer Illustration 3 cr.
This course is a project driven course. Students will use Intro Illus- trator to create a variety of portfolio quality drawings. Prereq- usites: VCOM1410.

VCOM2422 Print Processes II 3 cr.
Print Process II is a continuation of VCOM1422. Students will de- velop an understanding of the print process including: negative striping and proofing, color keys, job preflight, an overview of bindery and finishing operations (binding, folding, die cutting, foil stamping, etc.) and PDF workflow. Prerequisites: VCOM1422.

VCOM2423 Print Management 2 cr.
Students learn the customer service and sales side of the print industry. Topics include: job costing, estimating, customer service, print buying, print distribution (including postal regulations) Pre- requisites: VCOM1422.

VCOM2510 Commercial Photography 2 cr.
In this course the student will learn how to use all the features of a large format, 4x5 view camera to produce commercial style images. By using special image distortion correction and depth of field controls, the student will setup and shoot many different types of images, such as still life, product, advertisement, and oth- ers. The use of studio lighting will be discussed and used during these projects as well as the use of natural lighting when photo- graphing outdoor commercial projects. Prerequisites: VCOM1021, VCOM1515, and VCOM1580.

VCOM2530 Advanced Photojournalism 2 cr.
Photography has been used in print publication for decades and will continue to be an integral part of print communication. In this course students will be introduced to advanced photojournalistic techniques and concepts linked with studio and location photog- raphy skills, editing skills, and related concepts dealing with pre- visualization, use of traditional and digital 35mm cameras, cut-line writing, layout, visual storytelling, copyright, libel, privacy, Asso- ciated Press Style, and business skills. Prerequisites: VCOM1021, VCOM1720 or instructor approval.

VCOM2540 The Business of Photography 2 cr.
Professional photographers who use the craft to pay their bills will tell you that the vast majority of their duties do not revolve around photography itself, but the many and varied activities that support the business of photography. This course, therefore, does not teach students photography per se. This course will teach stu- dents about the skills, tools, and resources necessary to succeed in business.

VCOM2551 Digital Studio Workflow 1 2 cr.
Digital photography is rapidly becoming the media of choice. Pho- tographers are faced with a variety of image management issues as they explore new techniques and photographic opportunities. Students in this course will use a full digital studio to capture, manipulate, output and manage images via a standardized digital workflow process. In this course an emphasis is placed on color management. Students will explore both the technical issues in- volved in using digital equipment, and investigate the creative options available to the professional digital photographer. Prereq- usites: VCOM1010, or instructor approval.
COURSE DESCRIPTIONS

VCOM2555  Alternative Light Sources  2 cr.
This technical and creative course will allow students to explore the use of alternative light sources used in scientific, artistic, and commercial photography. Background about color theory and spectral analysis will give a foundation for understanding the range of possibilities open to the photographer. Projects and assignments will range from color balance and color temperature to use of infrared and ultra violet light sources. Discussion will include the use of lasers, spectral microscopy, and infrared sensors used in photographic equipment today. Prerequisites: VCOM102, VCOM1515 or instructor approval.

VCOM2560  Photography on the Internet  1 cr.
This course will help the student understand the connection between photography and the Internet (World Wide Web). As photography changes with the proliferation of digital imaging, new marketing display methods introduced, different clients—bases are formed, and unique product delivery methods are being established. In this course, initially the student will explore and research the new photographic concepts born of the internet. Then the student will build an image based web site for display and marketing as well explore other options of getting their images to the client. Prerequisites: VCOM1001, VCOM1010, VCOM1021 and VCOM1580.

VCOM2650  Introduction to Authorware  2 cr.
This course is designed to give the student introductory experience with Authorware training software. Students will concentrate on basic tool and design techniques, display options and presentation methods will be at the heart of this course. Upon completion the student will have an industry-ready photographic portfolio in preparation for career exploration. Prerequisites: Should be taken during the last semester prior to graduation and concurrently with VCOM2000.

VCOM2652  Digital Studio Workflow 2  2 cr.
This course enhances the skills and knowledge from VCOM2551 and takes workflow beyond capture, image management and output stages into the correction of difficult images and unusual situations. Advanced skills in Adobe Photoshop will be covered as the photographer learns how to solve technical issues and create unique products to help them succeed in the competitive workplace. Prerequisites: VCOM1006, VCOM1010, VCOM1021, VCOM1580, VCOM2520, VCOM2551.

VCOM2565  Crime Scene/Forensic Photography  2 cr.
This course will teach student to apply the basics of 35mm camera operation to the process and procedures of various crime scene and trauma photography investigations including, but not limited to: arson cases, auto accidents and auto-related death, break-ins, domestic abuse, personal injuries, homicides. Prerequisites: VCOM1021, VCOM1515.

VCOM2575  Medical Photography  2 cr.
Medical Photography focuses on traditional and digital photographic methods to accomplish a range of services for Medical Schools, Health Science departments, hospitals, clinics, and government agencies. Medical photographers are specifically trained to provide high quality medical products and services. This course will teach the student to apply photographic and lighting techniques to the needs of the health care profession. Prerequisites: VCOM1021, VCOM1515 or instructor approval.

VCOM2581  Photo Portfolio  2 cr.
This hands-on course will guide the student through the creation of a photography-based portfolio. Concepts in assemble techniques, display options and presentation methods will be at the heart of this course. Upon completion the student will have an industry-ready photographic portfolio in preparation for career exploration. Prerequisites: Should be taken during the last semester prior to graduation and concurrently with VCOM2000.

VCOM2582  Portfolio Development  (Photographic Entrepreneur)  2 cr.
This class will concentrate on preparing the student to enter the photography job market. Students will be required to create a finished professional portfolio demonstrating their photographic skills. The portfolio will include examples of film and digital photography. Images for inclusion in the portfolio will be created using a variety of photographic formats, and techniques, and will emphasize the marketing and business plan developed for a start-up business. As a part of this course, students are required to participate in a formal portfolio showing near the end of their final semester of school. Prerequisites: ENTR1170, ENTR1440, ENTR1900, VCOM1010, VCOM1021, VCOM1515, VCOM1570, VCOM1580, VCOM2510, VCOM2100 - must be taken concurrently or instructor approval.

VCOM2584  Portfolio Development (Art Communications)  2 cr.
This course will concentrate on preparing the student to enter the photography job market. Students will be required to create a finished professional portfolio demonstrating their photographic skills. The portfolio will include examples of film and digital photography. Images for inclusion in the portfolio will be created using a variety of photographic formats, and techniques, but will emphasize photojournalism, and artistically styled images. As a part of this course, students are required to participate in a formal portfolio showing near the end of their final semester of school. Prerequisites: VCOM1010, VCOM1021, VCOM1030, VCOM1080, VCOM1400 or VCOM1440, VCOM1515, VCOM1570, VCOM1580, VCOM1720, VCOM2510, VCOM2000 - must be taken concurrently or instructor approval.

VCOM2586  Portfolio Development (Scientific Imaging)  2 cr.
This course will concentrate on preparing the student to enter the photography job market. Students will be required to create a finished professional portfolio demonstrating their photographic skills. The portfolio will include examples of film and digital photography. Images for inclusion in the portfolio will be created using a variety of photographic formats, and techniques, but will emphasize scientific imaging. As a part of this course, students are required to participate in a formal portfolio showing near the end of their final semester of school. Prerequisites: VCOM1010, VCOM1021, VCOM1515, VCOM1570, VCOM1580, VCOM1730, VCOM1740, VCOM2565, and VCOM2575. VCOM2200 - must be taken concurrently or instructor approval.

VCOM2605  Audio/Video for Presentations  3 cr.
This course introduces the student to the planning, designing and production of photo/video based presentations and audio. Students will learn how to develop timelines, narrative scripts and story boards. Students will become familiar with techniques of audio, video and still images creation, compression and formatting appropriate for use in interactive multimedia and linear presentation. Delivery and packaging of a variety of digital media will also be covered.

VCOM2650  Multimedia Project Management  2 cr.
This course is designed to introduce the student to the methods of design and construction of a multimedia production. Students will learn project management, client contact and presentation techniques. Students will learn to integrate information from a variety of resources into a multimedia production design. Teamwork and group participation in project development will be stressed. Prerequisites: VCOM1001 recommended.

VCOM2655  Intro to Director  3 cr.
This is an introductory course in the use of 3D modeling and animation software. Basic modeling techniques, use of animation software, basic animation and understanding the 3D process will be stressed. Students will create models that will be animated. Emphasis will be placed on movement, application of textures, lighting, camera movement, and project continuity. Projects will be exported in video format for use in multimedia and web page projects. Prerequisites: VCOM1001, VCOM1010 recommended. VCOM1410 recommended.

VCOM2660  3D Modeling and Animation  3 cr.
This course is designed to give the skills needed to make basic computer generated 3D models and animations for use in multimedia and web projects. Software will be used to create, animate and render 3-D models. Textures, color and lighting will be applied to wire frame models. Emphasis is placed on tool and menu use to create models and animations. Prerequisites: VCOM1001, VCOM1010 required, VCOM1410 recommended.

VCOM2670  Introduction to Authorware  2 cr.
This course is designed to give the student introductory experiences in Authorware Professional, Macromedia's computer based training software. Students will concentrate on basic tool and menu operation, flow charting, storyboard development, and basic multimedia construction. Prerequisites: VCOM1001, VCOM1010 required, VCOM1410 recommended.
VCOM2680 Introduction to Flash 2 cr.
Students will use Macromedia object based 2D animation program to create animated segments for use in web pages. Timing, storyboarding, design and software tools will be emphasized. Prerequisites: VCOM1010, VCOM1410 recommended. **Articulated**

VCOM2685 Web Page Construction I 2 cr.
This class will familiarize students with the concepts of web page design and construction. Emphasis will be on good design for both graphic elements and logical web page information flow. Prerequisites: VCOM1010 recommended and VCOM1410 required or instructor approval. **Articulated**

VCOM2690 Web Page Construction II 3 cr.
In this class students will become familiar with advanced web page design techniques. The emphasis will be on good design of both graphic elements and logical web page information flow. This advanced course will introduce students to a variety of web page construction software packages and tools. Additionally issues dealing with file transmission (audio, video, multimedia interaction) will be discussed. Prerequisites: VCOM2685.

VCOM2694 Advanced Multimedia Production 2 cr.
This course is project intensive. Students will use skills learned in Intro Director and/or Intro Authorware to create portfolio quality multimedia production. Emphasis will be placed on use of scripting language, logical information flow, storyboarding, and quality graphic design. Prerequisites: VCOM1001, VCOM1010, VCOM1410, VCOM2685.

VCOM2700 Advanced Flash Animation 3 cr.
This course is designed to give students additional instructional and experience in Macromedia Flash Animation software. This is a project driven course and students will work on a variety of presentations for delivery on the web. Emphasis will be placed on design and the use of scripting language to control Flash animations. Prerequisites: VCOM2680.

VCOM2721 Portfolio for Graphic Design 2 cr.
This class will concentrate on preparing the student to enter the multimedia, print industry and illustration job market. Students will be required to create a finished graphics portfolio in the area of their degree. Students will use skills learned in other software applications to refine and develop projects for use in their portfolio. Projects will be created using multimedia and web authoring programs. Projects for inclusion in the portfolio will be created in pixel based, object based, layout, web authoring and multimedia programs. Prerequisites: This course must be taken in conjunction with VCOM2730.

VCOM2722 Portfolio for Multimedia and Web Development 2 cr.
This class will concentrate on preparing the student to enter the multimedia, print industry and illustration job market. Students will be required to create a finished graphics portfolio in the area of their degree. Students will use skills learned in other software applications to refine and develop projects for use in their portfolio. Projects will be created using multimedia and web authoring programs. Projects for inclusion in the portfolio will be created in pixel based, object based, layout, web authoring and multimedia programs. Prerequisites: This course must be taken in conjunction with VCOM2730.

VCOM2724 Portfolio for Applied Visual Arts 2 cr.
This class will concentrate on preparing the student to enter the applied arts fields which may include multimedia, print industry and illustration job market. Students will use skills learned in art mediums and software applications to refine and develop projects for use in their portfolio. Projects for inclusion in the portfolio will include art mediums as well as in pixel based, object based, and layout applications. Prerequisites: This course must be taken in conjunction with VCOM2730.

VCOM2730 Career Research Skills 1 cr.
This class will concentrate on preparing the student to enter the Visual Communication's job market. Students will be required to create a cover letter, resume and finished mini-portfolio. Students will practice job interviewing skills and prepare to present their portfolios. This course should be taken the last semester of study and should be taken in conjunction with VCOM2724, Portfolio Development (Applied Visual Arts) or VCOM2721 Portfolio Development (Graphic Design) or VCOM2722 Portfolio Development (Multimedia/Web) Prerequisites: Senior level status.

VCOM2800 Advanced 3D Modeling and Animation 4 cr.
This is an advanced course in 3D modeling and animation. Students will create animations for use on the web and in multimedia productions. Emphasis will be placed on modeling and animating objects and test. Students will create animations from storyboards and will animate to prepared audio tracks. This course will focus on creating portfolio quality animations. Prerequisites: VCOM1001, VCOM1010, VCOM1410, VCOM2660.

VCOM2810 3D Modeling and Animation Capstone 5 cr.
Students will work on complex animation projects for multimedia and web display. Students will be expected to produce industrial quality animations using advanced modeling and animation techniques. Prerequisites: VCOM1001, VCOM1010, VCOM1410, VCOM2660, VCOM2800 required (with instructor approval may be taken concurrently with VCOM2800).

VCOM2820 Advanced Typography 2 cr.
Advanced Typography is a continuation of VCOM1415 Typography Fundamentals. Students will develop a greater understanding of type as a key element of design. The course will concentrate on designing with type, understanding the relationship between type families and type styles, selecting type for emotional impact, and using color and texture in type. Additional topics will include type and copyright requirements, computer type faces and type on the web. Prerequisites: VCOM1415.

WELDING TECHNOLOGY

WELD1010 Oxy Fuel and Stick Welding 2 cr.
This course covers the introduction to metals, shop safety, along with technique and theory of welding, brazing, cutting and heating. This course is also the basis for all electric welding processes and is strongly recommended before taking any electric welding process.

WELD1012 Mig and Tig Welding 2 cr.
This course covers welding techniques on carbon steel, aluminum, and stainless steel. Students will perform welding tasks on carbon steel, stainless steel and aluminum.

WELD1100 Welding Safety and Theory 2 cr.
This course covers the technical process of the welding trade. Included in the course studies are oxy-fuel welding and cutting processes, shielded metal arc welding, machine components, electrode classifications, polarities and functions. Also included will be safety regulations, habits and requirements of the welding trade.

WELD1102 Shielded Metal Arc Welding I 4 cr.
This course covers basic Shielded Metal Arc Welding (stick) using various electrodes and currents (polarities) in the flat position. Also emphasized are shop safety and shop ethics. Prerequisites: WELD1100 must be taken while taking WELD1102 or by permission of instructor. **Articulated**

WELD1104 Semi Automatic Arc Welding I 3 cr.
This course will teach the student to wire feed carbon steel in all positions, using dual-shielded FC (flux cored) wire with CO2 shielding gases and self-shielded FC wire and submerged arc welding. Prerequisites: WELD1100.
WELD1106  Gas Tungsten Arc Welding I  3 cr.
This course is designed for hands on skills training using the Gas
Tungsten Arc Welding (tig) process on a variety of metals includ-
ing mild steel, stainless steel, and aluminum. Also included in the
course are machine set-up, safety, and the oxy-fuel welding and
cutting processes. Prerequisites: WELD1100 Welding Safety and
Theory must be taken while taking WELD1106 or by permission of
instructor. **Articulated**

WELD1108  Blueprint Reading  3 cr.
In this course the student will learn how to interpret weldment
fabrication drawings and other types of engineering prints such
as assembly, detail, machining and tooling prints.

WELD1110  Layout  3 cr.
This course is designed to introduce the student to the layout
processes of transferring information from blueprints to a working
layout. Prerequisites: WELD1108.

WELD1112  Welding Fabrication/Qualification  3 cr.
This course covers student fabrication experience on a working
project. Also covered in this course is the weld certification un-
der the AWS D11 code. The passing of this code test is required
for a diploma. Prerequisites: WELD1102, WELD1104, WELD1108,
WELD1114, and WELD1116.

WELD1114  Shielded Metal Arc Welding II  4 cr.
This course covers shielded metal arc welding and flux core arc
welding out of position. Also presented will be welding qualifica-
tion certification practices.

WELD1116  Semi Automatic Arc Welding II  2 cr.
This course covers the gas metal arc welding processes on mild
steel, aluminum, and stainless steel. Also covered are the mig
spray processes on aluminum, mild steel and stainless steel. Pre-
requisites: WELD1104 or instructor approval.

WELD1118  Gas Tungsten Arc Welding II  2 cr.
Using the oxy-acetylene GTAW processes, the student will learn
to fusion weld various metals in the flat and vertical positions. Hands-on experience will be emphasized in shape cutting with
electric eye machine.

WOOD FINISHING TECHNOLOGY

WOOD1004  Woodworking  3 cr.
This course covers the safety and operation of woodshop handtools
and power tools. Students will identify and create joinery used in
furniture construction. An emphasis will be placed on the duplica-
tion of furniture parts and the repairing of existing furniture parts.

WOOD1007  Methods of Fastening  3 cr.
This course covers the procedures and materials used in the disas-
sembly and reassembly of furniture, cabinets, and other similar wooden objects. The study and application of metal fasteners, ad-
hesives, and clamping procedures will be covered. Students will be
required to work on several pieces of furniture. An introduction to the
identification of period furniture and their components will be cov-
ered. Emphasis will be placed on the regluing of broken components
of these same pieces. Prerequisites: WOOD1001 and WOOD1004.

WOOD1010  Wood and Finishing Technology  5 cr.
Understanding and application of the coloring agents and coat-
ing agents for wood. This course also studies wood identification and
wood as a material learning how it relates to abrasives, environ-
mental fluctuation, coloring agents and coatings. This course is
important to those who want to be able to problem solve wood
and finishing defects.

WOOD1012  Color Theory  3 cr.
This course covers the application of stains and dyes necessary for
creating and duplicating colors on wood. Students will be required
to match several color samples on wood. The study of color and its
relationship to light will also be covered.

WOOD1015  Spot Repair I  3 cr.
This course covers the basic techniques used for furniture spot repair. Students learn basic color theory and the repairing
of small nicks, dents, and scratches in wood. Prerequisites: WOOD1012 is suggested.

WOOD1019  Advanced Spot Repair  5 cr.
This course covers advanced techniques used for spot repair. Larger and more difficult repairs will be worked on as performed in WOOD1015. Polyester fills, leather repair, vinyl repair, toners, blockouts, and other types of materials will be used to make cos-
metic repairs. Prerequisites: WOOD1015.

WOOD1021  Wood Refinishing  6 cr.
This class covers the total removal and replacement of the exist-
ing coating and color on wooden furniture. Surface preparation, including hand stripping, emersion systems, and bleaches, will be
covered. Students in this class will be required to refinish several
pieces of furniture. Emphasis will be placed on the safety and
terminology of finishing procedures and finishing schedules used.
Also emphasized is the understanding of how to give a customer
a bid for these services. Prerequisites: WOOD1004, WOOD1007,
WOOD1010, WOOD1012, WOOD1015, and WOOD1019.

WOOD1026  Advanced Finishing Techniques  5 cr.
This course covers advanced wood finishing techniques on new
wood products and advanced wood restoration techniques. New
wood product techniques involve spraying dyes, mixing color into
the finish, production spray systems, using industrial coatings
including transparent and opaque coatings, using power sanders
throughout the finishing schedule and evaluating coating per-
formance. Restoration techniques include hand caning, rushing,
advanced color matching techniques, advanced restoration tech-
niques, with an emphasis on problem solving finishing defects.
Prerequisites: WOOD1004, WOOD1007, WOOD1010, WOOD1012,
WOOD1015, WOOD1019, and WOOD1021.

WOOD1032  Antique Furniture Conservation  3 cr.
This course covers conservation techniques used on fine wooden
antiques and their attachments in order to maintain their value.
Preserving the existing finish, solvent cleaning, french polishing,
consolidating techniques and plastic mold duplicating will be cov-
ered. Prerequisites: All previous WOOD courses.
Welcome to Dakota County Technical College. As we head into our 40th Anniversary in 2010, the prime purpose of our college continues to be preparing our graduates for life as dynamic contributors to the nation’s workforce and as fully engaged members of their communities. Our faculty and staff are dedicated to the well-being and prosperity of our student population. We recognize that our students—with their individual abilities, interests and talents—are the keystones of our college.

Our college motto is “Real Education. Real Results.” Students who enroll at DCTC for degrees, diplomas, certificates or specific courses for career development swiftly discover that our faculty and staff are committed to helping them realize their personal and professional dreams. At Dakota County Technical College, the real story of our success is found in the real-life success stories of our students.

Best wishes for your future!

Real Education. Real Results.

WELCOME

CONNECT WITH US

Online: dctc.edu
Facebook: facebook.com/dakotatech
Twitter: twitter.com/dctc
E-mail: admissions@dctc.edu
Visit: Tuesday Campus Visits Every Tuesday, 12:45 - 2:30 p.m.
Contact: 1300 145th Street E.
Rosemount, MN 55068
651-423-8000

CELEBRATE WITH US

COLLEGE SHOWCASE
Wednesday, April 1, 2010 5 – 8 p.m.
Don’t miss this FUN, FREE family event featuring food from more than 40 area restaurants plus program demos, scholarship giveaways and more.

SEPTEMBERFEST
Saturday, September 11, 2010 10 a.m. – 5 p.m.
Please join us to celebrate DCTC’s 40th anniversary with a variety of outdoor activities, entertainment, food, road race (5K), car show, arts and crafts, and so much more.

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WELCOME

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Online: dctc.edu
Facebook: facebook.com/dakotatech
Twitter: twitter.com/dctc
E-mail: admissions@dctc.edu
Visit: Tuesday Campus Visits Every Tuesday, 12:45 - 2:30 p.m.
Contact: 1300 145th Street E.
Rosemount, MN 55068
651-423-8000

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WELCOME

CONNECT WITH US

Online: dctc.edu
Facebook: facebook.com/dakotatech
Twitter: twitter.com/dctc
E-mail: admissions@dctc.edu
Visit: Tuesday Campus Visits Every Tuesday, 12:45 - 2:30 p.m.
Contact: 1300 145th Street E.
Rosemount, MN 55068
651-423-8000

CELEBRATE WITH US

COLLEGE SHOWCASE
Wednesday, April 1, 2010 5 – 8 p.m.
Don’t miss this FUN, FREE family event featuring food from more than 40 area restaurants plus program demos, scholarship giveaways and more.

SEPTEMBERFEST
Saturday, September 11, 2010 10 a.m. – 5 p.m.
Please join us to celebrate DCTC’s 40th anniversary with a variety of outdoor activities, entertainment, food, road race (5K), car show, arts and crafts, and so much more.

Welcome to Dakota County Technical College. As we head into our 40th Anniversary in 2010, the prime purpose of our college continues to be preparing our graduates for life as dynamic contributors to the nation’s workforce and as fully engaged members of their communities. Our faculty and staff are dedicated to the well-being and prosperity of our student population. We recognize that our students—with their individual abilities, interests and talents—are the keystones of our college.

Our college motto is “Real Education. Real Results.” Students who enroll at DCTC for degrees, diplomas, certificates or specific courses for career development swiftly discover that our faculty and staff are committed to helping them realize their personal and professional dreams. At Dakota County Technical College, the real story of our success is found in the real-life success stories of our students.

Best wishes for your future!

Real Education. Real Results.

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