2014 | 2015
ACADEMIC CATALOG

DAKOTA COUNTY
TECHNICAL COLLEGE

Real Education. Real Results.

DAKOTA COUNTY
TECHNICAL COLLEGE

DCTC.EDU

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 & Approvals

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 Landscape Horticulture major is nationally accredited the Professional Landcare Network (PLANET).

- The Dental Assistant major is accredited by the Commission on Dental Accreditation of the American Dental Association.

- The Medical Assistant Program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP www.caahep.org; 1361 Park St. Clearwater, FL) upon the recommendation of the Medical Assisting Education Review Board (MAERB).

- The Automotive Technician program, Auto Body Collision Technology program, Automotive Service Educational Program, and Heavy Duty Truck program are accredited by the National Automotive Technicians Educator Foundation, Inc. (NATEF).

- The Heavy Construction Equipment program is accredited by the Association of Equipment Distributors (AED) Foundation.

- The Electrical Construction Maintenance program is approved by the Minnesota Board of Electricity.

- The Energy Technical Specialist – Nuclear program is certified by a Challenge Board of the Nuclear Energy Institute (NEI).

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 who qualify may 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 visit 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 Student Services, 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.

Note: Applicants must have a High School Diploma or GED to apply for financial aid.

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

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.

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, contact Colleen Moser at 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.

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. Submit International application form with $20 application fee.
2. Provide proof of English proficiency (Official TOEFL score of 61 or higher OR Accuplacer qualifying scores on Reading Comprehension (45 or higher) and Sentence Skill (70 or higher) OR Official U.S. college or university transcript with an English composition/writing course with a "C" or better.).
3. Complete and submit the Financial Responsibility Form.
4. Provide copy of passport, birth certificate, and/or visa.
5. Provide proof of high school completion (copy of high school certificate/transcript translated into English).
6. Send official U.S. college transcripts (if applicable).
7. Provide documentation of immunization and vaccination history.
8. Provide F-1 Transform Form, a copy of original I-20, a copy of your visa, and a copy of your I-94 form (for students with an F-1 visa who are transferring to DCTC).

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

International students pay the resident tuition rate.

International Student Admission Deadline

June 1 for Fall Semester
November 1 for Spring Semester

Post-Secondary Enrollment Option (PSEO) Eligibility and Admission

The Post-Secondary Enrollment Options (PSEO) Program is the program established by Minnesota State Statures 124D.09 to "promote rigorous educational pursuits and provide a wider variety of options for students." Through PSEO, 10th, 11th, and 12th grade high school students may earn both secondary and postsecondary credit for college or university courses completed. Sophomores may take one career/technical class if they passed the MCA 8th grade reading test. Juniors must be in the upper third of their class, and seniors must be in the top half of their class.

Admission Requirements

1. Submit the PSEO Application for Admission www.dctc.edu/go/pseo
2. Submit a high school transcript
3. Submit the Notice of Student Registration Form (available from DCTC or any high school counselor)
4. Submit MCA Reading Result (10th graders only) OR ACT scores (11th and 12th graders who do not met the class rank qualifier)
5. 11th and 12th graders must take the ACCUPLACER test
6. Submit the immunization form (home schooled students only)
7. Complete all admission requirements by June 1st for fall semester and December 1st for spring semester.

To discuss PSEO options at DCTC, call Karianne Loula at 651-423-8298, Susan Kingsbury at 651-423-8537, or email admissions@dctc.edu.

ACCUPLACER Placement Test

The ACCUPLACER test 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. A complete explanation of state residency requirements is available in Student Services.

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 Student Services 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 with a minimum of 20 semester credits delivered by DCTC. An A.A.S. degree is primarily intended to prepare students for employment. An A.A.S. program includes a minimum of 15 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 occupational or technical credits.

Associate in Science Degrees: are awarded for successful completion of a program of at least 60 credits with a minimum of 20 semester credits delivered by DCTC. An A.S. degree is designed for 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 31 to 72 semester credits. At least one-third of the credits shall be delivered by DCTC. Diplomas of 45 or more credits require a minimum of nine semester credits in general education.

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 Advising/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 must make payment arrangements with the Tuition 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 651-423-8248.

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. Online, mailed or faxed registration requests will be accepted 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. Visit www.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

651-423-8246 | 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 course selection. Tuition and fees for the 2012-2013 school year were $189.76 per credit (NOTE: some courses and programs have higher tuition rates).

Senior Citizens

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

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, and a number of other criteria are taken into consideration.

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.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 fafsa.gov.

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 loan entrance counseling session before applying for a student loan. This can be done at studentloans.gov. Additionally, students must complete a loan 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 from your advisor in the Students Services office. The student must complete the FAFSA to access these loan programs.

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 Student Services. 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 the technical skills needed to succeed in their career. The excellent faculty and superb technical facilities contribute to the learning environment. College 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 website at dctcbookstore.com for store hours.

Fresh Stop Cafe
651-423-8417

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.

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 2-202.

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 2-107. Please report any medical concerns to Health Services.

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.

Counseling
651-423-8217

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 contact Jennifer Robinson-West at 651-423-8217 or in Room 2-141.

Disability Services
651-423-8469

DCTC 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, mobility and/or communication. To discuss or arrange accommodations, call Anne Swanberg at 651-423-8469 or stop by room 2-141.

TRiO/Student Support Services
651-423-8420

DCTC has a federally-funded 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 to post-baccalaureate programs. For more information, visit dctc.edu/go/trio or stop by Room 2-141.

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.

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

651-423-8293 | 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. There is no cost to be a member of the Alumni Association. The mission of the Alumni Association is to reunite former students with the college and their programs, and to provide life-long learning opportunities and services to the community. To be a part of the association, contact Tharan Leopold at tharan.leopold@dctc.edu or visit dctc.edu/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.

Blue Knights Athletics

651-423-8330 | ATHLETICS@DCTC.EDU

DCTC participates in NJCAA Division II for baseball, fastpitch softball, volleyball and men's basketball. The DCTC women's soccer and men's soccer teams compete in NJCAA Division I. All teams are independent members of the NJCAA Region XIII. DCTC offers athletic scholarships (grant in aid) for participation in varsity athletics as awarded by the head coach of a particular team. Students wishing to play varsity sports for DCTC should visit www.goblueknights.com, the Student Life Center, or contact he head coach of a team.

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:

- American Marketing Association
- Automotive Club
- Business Professionals of America
- Chess Club
- Christians on Campus
- Design Connexion
- Gay Straight Alliance
- Hospitality Alumni Network
- Landscape Horticulture Club
- Lions Club
- Meeting Professionals International
- Multicultural Student Leadership Association
- Music Club
- Phi Theta Kappa Honor Society
- SkillsUSA
- STEM Club
- Student Ambassadors
- Student Senate
- U.S. Green Building Council
- Veterans Club
- Writers Club

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

Wellness Center

651-423-8330 | WELLNESS.CENTER@DCTC.EDU

The Wellness Center is a workout 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.
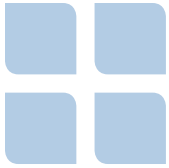
BUSINESS & MANAGEMENT

PROGRAMS OF STUDY

Accounting

Administrative Technology
- Electronic Health Information Management (eHIM)
- Executive & Administrative Assistant
- Legal Administrative Assistant
- Medical Administrative Specialist
- Project Management Technology

Business
- Business Administration
- Business Management
- Entrepreneurship/Small Business
- Management for Airline Professionals
- Multicultural Management
- Management Studies

Hospitality
- Hospitality Lodging Management
- Meeting & Event Management
- Spa & Resort Management

Marketing & Sales
- Business Marketing
- Marketing Design
- Sales Management
- Social Media Marketing

Individualized Studies

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
- Able to think tactically and strategically
- Desire to lead

Unless otherwise specified, salary data is sourced from iseek.org.

CONTACT US

FACULTY

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ACCOUNTING

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

Outcomes

Accountant A.A.S. Degree . . . . .60 cr.
Accountant Diploma . . . . .60 cr.
Accounting Clerk Diploma . . . . 32 cr.
Small Business Accounting Certificate. . . . . 15 cr.

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

- Accountant
- Staff Accountant
- Account Administrator
- Budget Accountant
- Business Analyst
- Financial Advisor
- Payroll Accountant
- Tax Accountant

Salary Data

Entry Level

- Average Wage: $19/hour
- Top Earners: $26/hour

Senior Level

- Average Wage: $35/hour
- Top Earners: $45/hour

ACCOUNTANT – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year – First Semester

ACCT1000	Principles of Accounting I	4
ACCT1100	Business Law & Ethics	3
ACCT1106	Accounting Mathematics	3
	General Education (MnTC Goal 3 or 4)	3
	Total Credits	**13**

First Year – Second Semester

ACCT1003	Principles of Accounting II	4
ACCT1206	Payroll Accounting	2
ACCT1306	Spreadsheets	3
ACCT1406	Income Tax	4
SPEE1020	Interpersonal Communication	3
	Total Credits	**16**

Second Year – First Semester

ACCT2000	Intermediate Accounting I	4
ACCT2100	Cost Accounting I	4
ACCT2200	Accounting Computer Apps 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
ACCT2206	Fund Non-Profit Accounting	3
	General Education Elective*	3
	Total Credits	**14**

TOTAL PROGRAM REQUIREMENTS	**60**

* Select General Education electives from any MnTC goal area.

ACCOUNTANT – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year – First Semester

ACCT1000	Principles of Accounting I	4
ACCT1100	Business Law & Ethics	3
ACCT1106	Accounting Mathematics	3
ADTC1018	Basic Computer Applications	3
	Technical Elective*	3
	Total Credits	**16**

First Year – Second Semester

ACCT1003	Principles of Accounting II	4
ACCT1206	Payroll Accounting	2
ACCT1306	Spreadsheets	3
ACCT1406	Income Tax	4
SPEE1020	Interpersonal Communication	3
	Total Credits	**16**

Second Year – First Semester

ACCT2000	Intermediate Accounting I	4
ACCT2100	Cost Accounting I	4
ACCT2200	Accounting Computer Apps I	3
ENGL1150	Composition I	3
	Total Credits	**14**

Second Year – Second Semester

ACCT2003	Intermediate Accounting II	4
ACCT2103	Cost Accounting II	4
ACCT2206	Fund Non-Profit Accounting	3
	General Education (MnTC Goal 3 or 4)	3
	Total Credits	**14**
	TOTAL PROGRAM REQUIREMENTS	**60**

* Select Technical electives from the following subject areas: ACCT, ISTC or ADTC.

** Select General Education electives from any MnTC goal area.

ACCOUNTING CLERK – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year – First Semester

ACCT1000	Principles of Accounting I	4
ACCT1100	Business Law & Ethics	3
ACCT1106	Accounting Mathematics	3
ADTC1018	Basic Computer Applications	3
	Technical Elective*	3
	Total Credits	**16**

First Year – Second Semester

ACCT1003	Principles of Accounting II	4
ACCT1206	Payroll Accounting	2
ACCT1306	Spreadsheets	3
ACCT1406	Income Tax	4
ENGL1150	Composition I	3
	Total Credits	**16**
	TOTAL PROGRAM REQUIREMENTS	**32**

* Select Technical electives from the following subject areas: ACCT, ISTC or ADTC.

SMALL BUSINESS ACCOUNTANT

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year – First Semester

ACCT1000	Principles of Accounting I	4
ACCT1206	Payroll Accounting	2
ACCT1306	Spreadsheets	3
ACCT2200	Accounting Computer Apps I	3
	Technical Electives*	3
	Total Credits	**15**
	TOTAL PROGRAM REQUIREMENTS	**15**

* Select Technical electives from ACCT1003, ACCT1100 or ACCT1406

DAKOTA COUNTY
TECHNICAL COLLEGE

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2014-2015 CATALOG

ELECTRONIC HEALTH INFORMATION MANAGEMENT (eHIM)

Delivery: Daytime, Online and Hybrid Classes
Start: Fall (full or part-time) or Spring (full or part-time)
Location: Rosemount Campus

Outcomes

Electronic Health Information Management (eHIM)
 A.A.S. Degree . . . . .60 cr.
Electronic Health Information Management (eHIM)
 Diploma . . . . .44 cr.

Major Description

eHIM Technology is a fast growing field and graduates of this program are vital members of healthcare teams, maintaining and providing crucial information for patient care and safety, reimbursement, marketing, legal issues and research. This program prepares students to identify and use a variety of health information resources and technologies to accomplish the objectives of diverse medical practice environments. These students may perform tasks related to using, analyzing, validating, coding, storing, securing, retrieving, measuring and controlling the quality of healthcare data. Emphasis will be placed on new and emerging technologies to accomplish these objectives and include courses using electronic health records software, insurance and coding priciples, and medical terminology. Students are introduced to Project Management and will become proficient in Word, Excel and Access. Graduates of the program may be eligible to take the national certification examination to become a Registered Health Information Technician (RHIT) or a Registered Health Information Administrator (RHIA).

Work Environment

Careers are found in hospitals, clinics, extended-care facilities, medical research groups, health departments, insurance companies and firms that provide medical transcription and/or coding services. eHIM Specialists and Speech Recognition Editors may also work from home.

Potential Job Titles

- eHIM Specialist
- Medical Documentation Specialist
- EHR Technician / HIM Analyst
- HIM Clinical Document Improvement Specialist
- Speech Recognition Editor
- Medical Insurance Clerk
- Patient Representative
- Quality Analyst Specialist

Salary Data

- Average Salary: $17.80/hour
- Top Earners: $23.11/hour

ELECTRONIC HEALTH INFORMATION MANAGEMENT (eHIM)– A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ADTC1005	Keyboarding/Formatting	3
ADTC1018	Basic Computer Applications	3
ADTC1045	Medical Terminology	2
ADTC1056	Intro to Healthcare Documentation	3
ADTC1090	Insurance & Coding	3
	Total Credits	**14**

First Year - Second Semester

ADTC1049	Applied Medical Terminology	3
ADTC1080	Technology in Healthcare	3
ADTC1260	Certification Basics - Word	3
HEAL1101	Anatomy & Physiology	4
ADTC1085	Transcription and Speech Editing	3
	Total Credits	**16**

Second Year - First Semester

ADTC1051	Human Diseases	3
ADTC1250	Project Management I	3
ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
	General Education Elective**	4
	Total Credits	**16**

Second Year - Second Semester

ADTC1265	Certification Basics - Excel	3
ADTC1270	Certification Basics - Access	3
ADTC1285	Oral Business Communications/ Job Seeking Skills	2
PHIL1350	Medical Ethics	3
	General Education (MnTC Goal 3 or 4)	3
	Total Credits	**14**

TOTAL PROGRAM REQUIREMENTS   60

** Select General Education electives from any MnTC goal area.

ELECTRONIC HEALTH INFORMATION MANAGEMENT (eHIM) – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ADTC1005	Keyboarding/Formatting	3
ADTC1018	Basic Computer Applications	3
ADTC1045	Medical Terminology	2
ADTC1056	Intro to Healthcare Documentation	3
ADTC1090	Insurance & Coding	3
	Total Credits	**14**

First Year - Second Semester

ADTC1049	Applied Medical Terminology	3
ADTC1080	Technology in Healthcare	3
ADTC1085	Transcription and Speech Editing	3
ADTC1265	Certification Basics - Excel	3
ADTC1270	Certification Basics - Access	3
	Total Credits	**15**

Second Year - First Semester

ADTC1051	Human Diseases	3
ADTC1250	Project Management I	3
ADTC1260	Certification Basics - Word	3
ADTC1285	Oral Business Communications/ Job Seeking Skills	2
HEAL1101	Anatomy & Physiology	4
	Total Credits	**15**
	TOTAL PROGRAM REQUIREMENTS	**44**

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EXECUTIVE & ADMINISTRATIVE ASSISTANT

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

Outcomes

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

Major Description

This program prepares students for employment in administrative support. Students use computer systems for document processing and file management tasks. It teaches the expertise needed for creating and editing documents, spreadsheets, databases, electronic presentations and Internet navigation research. Administrative assistants may be called upon to communicate, organize, coordinate, and integrate data.

This is the ideal major for people in the workforce looking for a challenge or ways to advance their careers and gives them an opportunity to obtain Microsoft Certification for the required certification classes.

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: $22.46/hour
- Top Earners: $29.84/hour

EXECUTIVE ASSISTANT – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ADTC1005	Keyboarding/Formatting	3
ADTC1010	Business English Skills	2
ADTC1018	Basic Computer Applications	3
ADTC1019	Receptionist Skills	2
ADTC1020	Office Procedures	4
	Total Credits	**14**

First Year - Second Semester

ADTC1017	Technology for the Business Professional	3
ADTC1230	MS Publisher	2
ADTC1260	Certification Basics - Word	3
ADTC1265	Certification Basics - Excel	3
ADTC1290	Written Business Communication	2
	Total Credits	**13**

Second Year - First Semester

ADTC1140	MS Access I	2
ADTC1275	Certification Basics - PowerPoint	3
ADTC1340	Quickbooks Pro	2
	Technical Elective*	2
SPEE1020	Interpersonal Communication	3
	General Education (MnTC Goal 3 or 4)	3
	Total Credits	**15**

Second Year - Second Semester

ADTC1040	Integrated Office Skills	3
ADTC1285	Oral Business Communications/ Job Seeking Skills	2
	Technical Elective*	3
ENGL1150	Composition I	3
	General Education Electives**	7
	Total Credits	**18**

TOTAL PROGRAM REQUIREMENTS	**60**

* Select Technical electives from the following subject areas: ADTC, ISTC, ENTR, ACCT, SMGT, or BUSN.
** Select General Education electives from any MnTC goal area.

ADMINISTRATIVE ASSISTANT – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ADTC1005	Keyboarding/Formatting	3
ADTC1010	Business English Skills	2
ADTC1018	Basic Computer Applications	3
ADTC1019	Receptionist Skills	2
ADTC1020	Office Procedures	4
	Technical Elective*	3
SPEE1020	Interpersonal Communication	3
	Total Credits	**20**

First Year - Second Semester

ADTC1017	Technology for the Business Professional	3
ADTC1040	Integrated Office Skills	3
ADTC1230	MS Publisher	2
ADTC1260	Certification Basics - Word	3
ADTC1275	Certification Basics - PowerPoint	3
ADTC1285	Oral Business Communications/ Job Seeking Skills	2
ADTC1290	Written Business Communication	2
	Total Credits	**18**
	TOTAL PROGRAM REQUIREMENTS	**38**

* Select Technical electives from the following subject areas:
ADTC, ISTC, ENTR, ACCT, SMGT, or BUSN.

RECEPTIONIST – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ADTC1000	Basic Keyboarding	1
ADTC1010	Business English Skills	2
ADTC1018	Basic Computer Applications	3
ADTC1019	Receptionist Skills	2
ADTC1020	Office Procedures	4
	Total Credits	**12**

First Year - Second Semester

ADTC1017	Technology for the Business Professional	3
ADTC1285	Oral Business Communications/ Job Seeking Skills	2
ADTC1290	Written Business Communication	2
	Technical Elective*	6
	Total Credits	**13**
	TOTAL PROGRAM REQUIREMENTS	**25**

* Select Technical electives from the following subject areas:
ADTC, ISTC, ENTR, ACCT, SMGT, or BUSN.

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LEGAL ADMINISTRATIVE ASSISTANT

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

Outcomes

Legal Administrative Assistant A.A.S. Degree . . . . .60 cr.
Legal Administrative Assistant Diploma . . . . .39 cr.
Legal Receptionist Certificate . . . . .25 cr.

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 Editing & Proofreading. Students also take a variety 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 administrative assistants interact often and directly with clients and staff.

Potential Job Titles

- Legal Administrative Assistant
- Law Secretary
- Legal Secretary

Salary Data

- Average Wage: $22.76/hour
- Top Earners: $32.47/hour

LEGAL ADMINISTRATIVE ASSISTANT – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ADTC1005	Keyboarding/Formatting	3
ADTC1010	Business English Skills	2
ADTC1018	Basic Computer Applications	3
ADTC1019	Receptionist Skills	2
ADTC1020	Office Procedures	4
OTEC1725	Transactional Law †	3
	Total Credits	**17**

First Year - Second Semester

ADTC1040	Integrated Office Skills	3
ADTC1017	Technology for Business Professionals	3
ADTC1275	Certification Basics - PowerPoint	3
ADTC1290	Written Business Communication	2
OTEC1730	Civil Procedures †	3
	Total Credits	**14**

Second Year - First Semester

ADTC1260	Certification Basics - Word	3
OTEC2735	Family Law/Criminal Law †	3
ENGL1150	Composition I	3
PHIL1100	Ethics	3
	Total Credits	**12**

Second Year - Second Semester

ADTC1285	Oral Business Communications/ Job Seeking Skills	2
OTEC2740	Legal Editing & Proofreading	3
	Technical Elective*	2
SPEE1020	Interpersonal Communication	3
	General Education (MnTC Goal 3 or 4)	3
	General Education Elective**	4
	Total Credits	**17**

TOTAL PROGRAM REQUIREMENTS	**60**

† Online course offered by South Central College-North Mankato.

* Select Technical electives from the following subject areas: ADTC, ISTC, ENTR, ACCT, SMGT, or BUSN.

** Select General Education electives from any MnTC goal area.

LEGAL ADMINISTRATIVE ASSISTANT – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ADTC1005	Keyboarding/Formatting	3
ADTC1010	Business English Skills	2
ADTC1018	Basic Computer Applications	3
ADTC1019	Receptionist Skills	2
ADTC1020	Office Procedures	4
OTEC1725	Transactional Law *†*	3
SPEE1020	Interpersonal Communication	3
	Total Credits	**20**

First Year - Second Semester

ADTC1017	Technology for the Business Professional	3
ADTC1040	Integrated Office Skills	3
ADTC1260	Certification Basics - Word	3
ADTC1275	Certification Basics - PowerPoint	3
ADTC1285	Oral Business Communications/ Job Seeking Skills	2
ADTC1290	Written Business Communication	2
OTEC1730	Civil Procedures	3
	Total Credits	**19**
	TOTAL PROGRAM REQUIREMENTS	**39**

† Online course offered by South Central College-North Mankato.

LEGAL RECEPTIONIST – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ADTC1000	Basic Keyboarding	1
ADTC1010	Business English Skills	2
ADTC1018	Basic Computer Applications	3
ADTC1020	Office Procedures	4
OTEC1725	Transactional Law *†*	3
	Total Credits	**13**

First Year - Second Semester

ADTC1017	Technology for the Business Professional	3
ADTC1019	Receptionist Skills	2
ADTC1285	Oral Business Communications/ Job Seeking Skills	2
ADTC1290	Written Business Communication	2
	Technical Elective*	3
	Total Credits	**12**
	TOTAL PROGRAM REQUIREMENTS	**25**

† Online course offered by South Central College-North Mankato.

* Select Technical electives from the following subject areas: ADTC, ISTC, ENTR, ACCT, SMGT, or BUSN.

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MEDICAL ADMINISTRATIVE SPECIALIST

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

Outcomes

Medical Administrative Specialist A.A.S. Degree . . . . . . .60 cr.
Medical Administrative Specialist Diploma . . . . .39 cr.
Medical Receptionist Certificate .25 cr.

Major Description

This program prepares students to work in a variety of positions in the medical field. Some of the specialized medical courses include medical office procedures, medical terminology, and 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 specialists are employed in hospitals, clinics, physician offices, insurance companies and other organizations connected to the medical field. Administrative duties include composing correspondence, managing doctors' schedules, preparing professional presentations, scheduling patient appointments, maintaining patient files and transcribing reports.

Potential Job Titles

- Medical Office Clerk
- Medical Office Secretary
- Medical Office Specialist
- Patient Services Representative

Salary Data

- Average Wage: $18.45/hour
- Top Earners: $22.92/hour

MEDICAL ADMINISTRATIVE SPECIALIST – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ADTC1005	Keyboarding/Formatting	3
ADTC1010	Business English Skills	2
ADTC1018	Basic Computer Applications	3
ADTC1019	Receptionist Skills	2
ADTC1045	Medical Terminology	2
	Total Credits	**12**

First Year - Second Semester

ADTC1051	Human Diseases	3
ADTC1085	Transcription and Speech Editing	3
ADTC1290	Written Business Communication	2
HEAL1101	Anatomy & Physiology	4
PSYC1105	General Psychology	4
	Total Credits	**16**

Second Year - First Semester

ADTC1057	Medical Office Procedures	4
ADTC1260	Certification Basics - Word	3
ADTC1275	Certification Basics - PowerPoint	3
ENGL1150	Composition I	3
ADTC1080	Technology in Healthcare	3
	Total Credits	**16**

Second Year - Second Semester

ADTC1040	Integrated Office Skills	3
ADTC1285	Oral Business Communications/ Job Seeking Skills	2
	Technical Elective*	3
SPEE1020	Interpersonal Communication	3
	General Education (MnTC Goal 3 or 4)	3
	General Education Elective**	2
	Total Credits	**16**
	TOTAL PROGRAM REQUIREMENTS	**60**

* Select Technical electives from the following subject areas: ADTC, ISTC, ENTR, ACCT, SMGT, or BUSN.

** Select General Education electives from any MnTC goal area.

MEDICAL ADMINISTRATIVE SPECIALIST – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ADTC1005	Keyboarding/Formatting	3
ADTC1010	Business English Skills	2
ADTC1018	Basic Computer Applications	3
ADTC1019	Receptionist Skills	2
ADTC1045	Medical Terminology	2
ADTC1057	Medical Office Procedures	4
ADTC1275	Certification Basics - PowerPoint	3
	Total Credits	**19**

First Year - Second Semester

ADTC1040	Integrated Office Skills	3
ADTC1080	Technology in Healthcare	3
ADTC1260	Certification Basics - Word	3
ADTC1285	Oral Business Communications/ Job Seeking Skills	2
ADTC1290	Written Business Communication	2
HEAL1101	Anatomy & Physiology	4
SPEE1020	Interpersonal Communication	3
	Total Credits	**20**
	TOTAL PROGRAM REQUIREMENTS	**39**

MEDICAL RECEPTIONIST – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ADTC1000	Basic Keyboarding	1
ADTC1010	Business English Skills	2
ADTC1018	Basic Computer Applications	3
ADTC1045	Medical Terminology	2
ADTC1057	Medical Office Procedures	4
	Total Credits	**12**

First Year - Second Semester

ADTC1019	Receptionist Skills	2
ADTC1080	Technology in Healthcare	3
ADTC1285	Oral Business Communications/ Job Seeking Skills	2
ADTC1290	Written Business Communication	2
HEAL1101	Anatomy & Physiology	4
	Total Credits	**13**
	TOTAL PROGRAM REQUIREMENTS	**25**

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PROJECT MANAGEMENT TECHNOLOGY ASSISTANT

Delivery: Daytime, Online and Hybrid Classes
Start: Fall (full or part-time) or Spring (full or part-time)
Location: Rosemount Campus

Outcomes
Project Management Technology Assistant
A.A.S. Degree . . . . .60 cr.
Project Management Technology Assistant
Diploma . . . . .44 cr.

Major Description
This program introduces students to fundamental knowledge and skills utilized in entry-level project management and administrative support positions. Students will be exposed to a variety of skills related to planning, organizing, implementing, leading and controlling the work of a project to meet the goals and objectives of the organization. The basics include all phases of the project management life cycle, project scope and planning, activity scheduling, cost and budget, quality principles, human resources and team leadership, formal and informal communications and documentation, risk planning and monitoring, and contracts and procurement. Students will become proficient in the use of software tools such as MS Project, Word, Excel and Access.

Work Environment
Project management practices have spread across multiple disciplines from technology to manufacturing, from real estate to construction, and from sales management to service. These administrative support opportunities are available in many career fields, including but not limited to business, marketing, urban and rural planning, healthcare, information technology, media and education.

Potential Job Titles
- Project Management Associate
- Executive Assistant
- Project Management Support
- Project Management Assistant Coordinator

Salary Data
- Average Salary: $17.80/hour
- Top Earners: $23.11/hour

PROJECT MANAGEMENT TECHNOLOGY ASSISTANT– A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ADTC1005	Keyboarding/Formatting	3
ADTC1010	Business English Skills	2
ADTC1018	Basic Computer Applications	3
ADTC1019	Receptionist Skills	2
ADTC1020	Office Procedures	4
	Total Credits	**14**

First Year - Second Semester

ADTC1017	Technology for the Business Professional	3
ADTC1260	Certification Basics - Word	3
ADTC1275	Certification Basics - PowerPoint	3
ADTC1340	Quickbooks Pro	2
ADTC1290	Written Business Communication	2
	Total Credits	**13**

Second Year - First Semester

ADTC1250	Project Management I	3
ADTC1285	Oral Business Communications/ Job Seeking Skills	2
ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
	General Education (MnTC Goal 3 or 4)	3
	General Education Electives**	3
	Total Credits	**17**

Second Year - Second Semester

ADTC1040	Integrated Office Skills	3
ADTC1252	Project Management II	3
ADTC1265	Certification Basics - Excel	3
ADTC1270	Certification Basics - Access	3
	General Education Electives**	4
	Total Credits	**16**

TOTAL PROGRAM REQUIREMENTS	**60**

* Pending MnSCU approval.

** Select General Education electives from any MnTC goal area.

PROJECT MANAGEMENT TECHNOLOGY – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ADTC1005	Keyboarding/Formatting	3
ADTC1010	Business English Skills	2
ADTC1018	Basic Computer Applications	3
ADTC1019	Receptionist Skills	2
ADTC1020	Office Procedures	4
ADTC1250	Project Management I	3
	Total Credits	**17**

First Year - Second Semester

ADTC1017	Technology for the Business Professional	3
ADTC1040	Integrated Office Skills	3
ADTC1252	Project Management II	3
ADTC1265	Certification Basics - Excel	3
ADTC1270	Certification Basics - Access	3
	Total Credits	**15**

Second Year - First Semester

ADTC1260	Certification Basics - Word	3
ADTC1275	Certification Basics - PowerPoint	3
ADTC1285	Oral Business Communications/ Job Seeking Skills	2
ADTC1290	Written Business Communication	2
ADTC1340	Quickbooks Pro	2
	Total Credits	**12**
	TOTAL PROGRAM REQUIREMENTS	**44**

* Pending MnSCU approval.

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BUSINESS ADMINISTRATION

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

Outcome
Business Administration A.S. Degree . . . . .60 cr.

Major Description
This program provides essential knowledge, skills and abilities that can be applied to the ever changing and highly competitive world of business. In this multidisciplinary degree, students understand business from management, financial and marketing perspectives. 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
Office Manager
- Average Wage: $24.86/hour
- Top Earners: $36.07/hour

Operations Manager
- Average Wage: $52.17/hour
- Top Earners: $80+/hour

BUSINESS ADMINISTRATION – A.S. DEGREE

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

ACCT1000	Principles of Accounting I	4
ACCT1003	Principles of Accounting II	4
BUSN1000	Foundations of Management	3
BUSN1110	Business Law & Ethics	3
BUSN1210	Project Management	3
BUSN1220	Effective Business Communication	3
BUSN1500	Fundamentals of Business	4
MKTC1000	Principles of Marketing	3
	Technical Electives (from BUSN)	3
	Total Credits	**30**

General Education

ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
	General Education Elective (Goal 4)	4
	General Education Elective (Goal 3)	3
	General Education Electives*	17
	Total Credits	**30**
	TOTAL PROGRAM REQUIREMENTS	**60**

* Select General Education electives from any MnTC goal area.

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BUSINESS MANAGEMENT

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

Outcomes

Business Management A.A.S. Degree . . . . .60 cr.
Human Resource Development Certificate . . . . 17 cr.
Multicultural Supervision Certificate . . . . 17 cr.
Quality Improvement Certificate . . . . 17 cr.
Supervisory Leadership Certificate . . . . 17 cr.

Major Description

This program provides working adults with the essential knowledge, skills and abilities to succeed in today's increasingly competitive business environment. Students acquired the competencies that can be universally applied to global and local organizations in the profit, non-profit and public sectors. Students can individualize their degree by selecting an emphasis area through the completion of two of the following certificates:

- Human Resources Development Certificate
- Multicultural Supervision Certificate
- Quality Improvement Certificate

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: $24.86/hour
- Top earners: $36.07/hour

BUSINESS MANAGEMENT – A.A.S. DEGREE

BUSN1000	Foundations of Management	3
BUSN1010	Leadership	3
BUSN1020	Management Effectiveness	3
BUSN1030	Financial Management	2
BUSN1040	Organizational Behavior	3
	Total Credits	**14**

Technical Paths

Select two of the following three certificates:	
Human Resources Development Certificate	14
Multicultural Supervision Certificate	14
Quality Improvement Certificate	14
Total Credits	**28**

Graduation Project or Internship

Choose one of the following:		
BUSN2010	Graduation Project *	3
BUSN2000	Internship	3
	Total Credits	**3**

General Education

ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
	Science or Math (MnTC Goal 3 or 4)	3
	General Education Electives**	6
	Total Credits	**15**
	TOTAL PROGRAM REQUIREMENTS	**60**

* Graduation Project must have advisor approval and registration in the last semester of attendance. See advisor for details.

** Select General Education electives from any MnTC goal area.

HUMAN RESOURCE DEVELOPMENT – CERTIFICATE ††

BUSN1100	Human Resource Management	3
BUSN1110	Business Law & Ethics	3
BUSN1120	Managing Performance	3
BUSN1130	Risk Management	2
BUSN1140	Training & Developing Employees	3
	Total Credits	**14**

General Education

SPEE1020	Interpersonal Communication	3
	Total Credits	**3**
	TOTAL PROGRAM REQUIREMENTS	**17**

MULTICULTURAL SUPERVISION – CERTIFICATE

BUSN1300	Multicultural Mentoring I	2
BUSN1310	Multicultural Mentoring II	1
BUSN1320	Managing Diversity	3
BUSN1330	Leading a Multicultural Workforce	3
BUSN1340	International Business	3
BUSN1350	Multicultural Conflict Resolution	2
	Total Credits	**14**

General Education

	General Education Elective**	3
	Total Credits	**3**
	TOTAL PROGRAM REQUIREMENTS	**17**

QUALITY IMPROVEMENT – CERTIFICATE ††

BUSN1200	Quality Management	3
BUSN1210	Project Management	3
BUSN1220	Effective Business Communication	3
BUSN1230	Operation Management	3
BUSN1240	Creativity and Problem Solving	2
	Total Credits	**14**

General Education

ENGL1150	Composition I	3
	Total Credits	**3**
	TOTAL PROGRAM REQUIREMENTS	**17**

SUPERVISORY LEADERSHIP – CERTIFICATE

BUSN1000	Foundations of Management	3
BUSN1010	Leadership	3
BUSN1020	Management Effectiveness	3
BUSN1030	Financial Management	2
BUSN1040	Organizational Behavior	3
	Total Credits	**14**

General Education

	General Education Elective**	3
	Total Credits	**3**
	TOTAL PROGRAM REQUIREMENTS	**17**

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ENTREPRENEURSHIP/SMALL BUSINESS

Delivery: Evening and Online Classes
Start: Fall or Spring Semester, Full- or Part-Time

Outcome
Business Entrepreneur Certificate. . . . . 21 cr.

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 ENTREPRENEUR – CERTIFICATE

ENTR1170	Introduction to Small Business	2
ENTR1180	Legal Issues for Small Business	3
ENTR1475	Marketing Strategies for Small Bus I	2
ENTR1480	Marketing Strategies for Small Bus II	2
ENTR1725	Sales Techniques I	2
ENTR1750	Sales Techniques II	2
ENTR1860	Business Plan	3
ENTR1920	Capitalizing & Financial Management For Small Business	2
	Total Credits	**18**

General Education

ENGL1125	Business Writing	3
	Total Credits	**3**
	TOTAL PROGRAM REQUIREMENTS	**21**

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2014-2015 CATALOG

MANAGEMENT FOR AIRLINE PROFESSIONALS

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

Outcome
Mgmt. for Airline Professionals A.A.S. Degree . . . . .60 cr.

Major Description
This program is for professionals with experience in the aviation industry looking to advance their career. Students obtain the business 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/Supervisor
- Airline Ticketing Manager/Supervisor
- Airline Baggage Manager/Supervisor
- Airline Ramp Supervisor
- Manager/Supervisor

Salary Data *(Payscale.com)*

Aircraft Maintenance Supervisor
- Salary Range: $55,368-$74,089/year

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

	Technical Electives* or Prior Learning Credits	31
	Technical Electives (From BUSN)	14
	Total Credits	**45**

General Education

ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
	Science (MNTC Goal 3)	3
	General Education Electives**	6
	Total Credits	**15**
	TOTAL PROGRAM REQUIREMENTS	**60**

Please consult your program advisor regarding your academic plans.

* Select Technical electives from any technical program, or credit for prior learning.

** Select General Education electives from any MnTC goal area.

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MANAGEMENT FOR TECHNICAL PROFESSIONALS

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

Outcome

Management for Technical Professionals A.A.S. Degree 60 cr.

Major Description

This program provides students with the knowledge, skills and abilities to succeed in leadership positions and enhances career mobility. The program is highly individualized based on a student's interests and previous experience by completing a credit for prior learning assessment process. Students can leverage their specific technical field with the required Business Management emphasis (BUSN), and they can further explore more than one of DCTC's programs as part of this degree.

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.

Potential Job Titles

- Production Supervisor
- Manager
- Facility Manager
- Line Supervisor
- Maintenance Manager
- Manufacturing Supervisor
- Quality Manager
- Human Resources Manager

Salary Data

- Average Wage: $49.21/hour
- Top Earners: $77.52/hour

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

	Technical Electives* or Prior Learning Credits	31
	Technical Electives* (from BUSN)	14
	Total Credits	**45**

General Education

ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
	Science (MNTC Goal 3)	3
	General Education Electives**	6
	Total Credits	**15**
	TOTAL PROGRAM REQUIREMENTS	**60**

Please consult your program advisor regarding your academic plans.

* Select Technical electives from any technical program, or credit for prior learning.

** Select General Education electives from any MnTC goal area.

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MULTICULTURAL MANAGEMENT

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

Outcomes
Multicultural Human Resources Management Diploma . . 33 cr.
Multicultural Leadership Diploma . . . . 33 cr.
Multicultural Supervision Certificate. . . . . 14 cr.

Major Description
These diplomas and certificate provide students with the awareness, knowledge, skills and abilities necessary to succeed in today's multicultural work environments. Students learn to develop a unique set of multicultural supervision competencies, which can be universally applied to global and local organizations in the profit, non-profit and public sectors .

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
- Supervisor
- Manager
- Production Foreman
- Diversity Coordinator
- Human Resources Manager
- Frontline Supervisor
- Non-Profit Director

Salary Data
- Average Wage: $24.86/hour
- Top Earners: $36.07/hour

MULTICULTURAL HUMAN RESOURCE MANAGEMENT – DIPLOMA

BUSN1100	Human Resource Management	3
BUSN1110	Business Law & Ethics	3
BUSN1120	Managing Performance	3
BUSN1130	Risk Management	2
BUSN1140	Training & Developing Employees	3
BUSN1240	Creativity and Problem Solving	2
BUSN1300	Multicultural Mentoring I	2
BUSN1310	Multicultural Mentoring II	1
BUSN1320	Managing Diversity	3
BUSN1330	Leading a Multicultural Workforce	3
BUSN1340	International Business	3
BUSN1350	Multicultural Conflict Resolution	2
	Total Credits	**30**

General Education

SPEE1020	Interpersonal Communication	3
	Total Credits	**3**
	TOTAL PROGRAM REQUIREMENTS	**33**

MULTICULTURAL LEADERSHIP – DIPLOMA

BUSN1000	Fondations of Management	3
BUSN1010	Leadership	3
BUSN1020	Management Effectiveness	3
BUSN1030	Financial Management	2
BUSN1040	Organizational Behavior	3
BUSN1240	Creativity and Problem Solving	2
BUSN1300	Multicultural Mentoring I	2
BUSN1310	Multicultural Mentoring II	1
BUSN1320	Managing Diversity	3
BUSN1330	Leading a Multicultural Workforce	3
BUSN1340	International Business	3
BUSN1350	Multicultural Conflict Resolution	2
	Total Credits	**30**

General Education

SPEE1020	Interpersonal Communication	3
	Total Credits	**3**
	TOTAL PROGRAM REQUIREMENTS	**33**

MULTICULTURAL SUPERVISION – CERTIFICATE

BUSN1300	Multicultural Mentoring I	2
BUSN1310	Multicultural Mentoring II	1
BUSN1320	Managing Diversity	3
BUSN1330	Leading a Multicultural Workforce	3
BUSN1340	International Business	3
BUSN1350	Multicultural Conflict Resolution	2
	Total Credits	**14**

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HOSPITALITY LODGING MANAGEMENT

Delivery: Evening and Online Classes
Start: Fall or Spring Semester, Full- or Part-Time

Outcomes

Hospitality Lodging Management A.A.S. Degree. . . . . . . 60 cr.
Hospitality Lodging Business Certificate. . . . . 26 cr.
Hospitality Lodging Operations Certificate. . . . . 23 cr.

Major Description

The hospitality industry is the largest and fastest growing industry in the world. There are more than four million hotel rooms in thousands of properties within North America alone. Lodging establishments range in size from intimate inns to mega conference hotels. Some are designed for the budget traveler, while others provide luxury accommodations to the highly affluent traveler. Throughout this international industry, the benchmarks of success are measured on the comfort of the sleeping room, quality of food, and service received. These simple components set the properties apart. In addition, many lodging properties offer meeting and event space with accompanying services.

Work Environment

Hospitality lodging staff focuses on the guests, and their experience. They offer exemplary service to ensure guest loyalty and business success. The work environment is fast-paced. Staff members offer a variety of services simultaneously, while maintaining a pleasant and gracious demeanor.

Potential Job Titles

- Account Manager
- Customer Service Specialist
- Event Manager
- Front Office Manager
- Guest Services Manager
- Meeting Planner
- Member Services Representative
- Operations Manager
- Rooms Manager
- Sales Manager

Salary Data

- Average Wage: $23.38/hour
- Top Earners: $34.45/hour

HOSPITALITY LODGING MANAGEMENT – A.A.S. DEGREE

SMGT1022	Leadership	3
SMGT1174	Hospitality Law	3
SMGT1215	Negotiation Strategies	3
SMGT1260	Managing Teams	3
SMGT1660	Introduction to Hospitality and Tourism	2
SMGT1666	Lodging Operations and Coordination	2
SMGT1670	Lodging Systems and Technology	2
SMGT1675	Hotel Front Office Management	3
SMGT1680	Hospitality Space & Logistics Management	3
SMGT1681	Hospitality Marketing & Consumer Behavior	3
SMGT1682	Hospitality Procurement & Cost Control	3
SMGT1687	Hospitality Lodging Issues	3
SMGT1685	Hospitality and Tourism Guest Services	2
SMGT1686	Hospitality Food & Beverage Management Fundamentals	2
SMGT1695	Hospitality Risk Management	2
SMGT2105	Managing Diversity	3
	Technical Electives*	3
	Total Credits	**45**

General Education

ENGL1150	Composition I	3
PHIL1200	Critical Thinking	3
SPEE1020	Interpersonal Communication	3
	General Education (MnTC Goal 3 or 4)	3
	General Education Elective**	3
	Total Credits	**15**
	TOTAL PROGRAM REQUIREMENTS	**60**

Select two technical elective courses listed below.

** *Select General Education electives from any MnTC goal area.*

TECHNICAL ELECTIVE COURSES

(Select a total of 3 credits from list)

SMGT1171	Strategies for Sales and Closing Success	3
SMGT1684	Hospitality Lodging Revenue Management	3
SMGT1875	Training and Developing Employees	3

HOSPITALITY LODGING BUSINESS – CERTIFICATE

SMGT1171	Strategies for Sales and Closing Success	3
SMGT1174	Hospitality Law	3
SMGT1215	Negotiation Strategies	3
SMGT1660	Introduction to Hospitality and Tourism	2
SMGT1666	Lodging Operations and Coordination	2
SMGT1670	Lodging Systems and Technology	2
SMGT1680	Hospitality Space & Logistics Management	3
SMGT1681	Hospitality Marketing & Consumer Behavior	3
SMGT1684	Hospitality Lodging Revenue Management	3
SMGT1686	Hospitality Food & Beverage Management Fundamentals	2
	Total Credits	**26**
	TOTAL PROGRAM REQUIREMENTS	**26**

HOSPITALITY LODGING OPERATIONS – CERTIFICATE

SMGT1022	Leadership	3
SMGT1174	Hospitality Law	3
SMGT1660	Introduction to Hospitality and Tourism	2
SMGT1666	Lodging Operations and Coordination	2
SMGT1670	Lodging Systems and Technology	2
SMGT1675	Hotel Front Office Management	3
SMGT1682	Hospitality Procurement & Cost Control	3
SMGT1685	Hospitality and Tourism Guest Services	2
SMGT1875	Training and Developing Employees	3
	Total Credits	**23**
	TOTAL PROGRAM REQUIREMENTS	**23**

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MEETING & EVENT MANAGEMENT

Delivery: Evening and Online Classes
Start: Fall or Spring Semester, Full- or Part-Time

Outcomes

Meeting & Event Management A.A.S. Degree. . . . . .60 cr.
Meeting & Event Management Certificate. . . . . 16 cr.

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.

Potential Job Titles

- Conference Organizer
- Event Manager
- Group Sales
- Housing Coordinator
- Meeting Planner
- Project Manager
- Special Event Coordinator
- Sponsor and Fund Developer
- Trade Show Manager
- Wedding Planner

Salary Data

- Average Wage: $23.02/hour
- Top Earners: $35.42/hour

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

SMGT1022	Leadership	3
SMGT1160	Fundamentals of Meeting, Conference & Event Management	2
SMGT1161	Advanced Meeting, Conference & Event Mgmt.	3
SMGT1162	Special Event Management & Coordination	3
SMGT1163	Event Promotion	3
SMGT1172	Project Management for Meetings & Events	3
SMGT1260	Managing Teams	3
SMGT1660	Introduction to Tourism and Hospitality	2
SMGT1666	Lodging Operations and Coordination	2
SMGT1675	Hotel Front Office Management	3
SMGT1680	Hospitality Space & Logistics Management	3
SMGT1685	Hospitality and Tourism Guest Services	2
SMGT1686	Hospitality Food & Beverage Management Fundamentals	2
SMGT1695	Hospitality Risk Management	2
	Technical Electives*	9
	Total Credits	**45**

General Education

ENGL1150	Composition I	3
PHIL1200	Critical Thinking	3
SPEE1020	Interpersonal Communication	3
	General Education Elective (Goal 3 or 4)	3
	General Education Elective**	3
	Total Credits	**15**
	TOTAL PROGRAM REQUIREMENTS	**60**

* Select three technical elective courses listed below.

** Select General Education electives from any MnTC goal area.

TECHNICAL ELECTIVE COURSES
(Select a total of 9 credits from list)

SMGT1166	Event Design	3
SMGT1171	Strat. for Sales and Closing Success	3
SMGT1173	Life Celebrations	3
SMGT1174	Hospitality Law	3
SMGT1175	Sponsorship & Trade Show Management	3
SMGT1215	Negotiation Strategies	3

MEETING & EVENT MANAGEMENT – CERTIFICATE

SMGT1160	Fundamentals 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
SMGT1695	Hospitality Risk Management	2
	Technical Elective*	3
	Total Credits	**16**
	TOTAL PROGRAM REQUIREMENTS	**16**

Select one technical elective courses listed below.

TECHNICAL ELECTIVE COURSES
(Select a total of 3 credits from list)

SMGT1166	Event Design	3
SMGT1171	Strat. for Sales and Closing Success	3
SMGT1173	Life Celebrations	3
SMGT1174	Hospitality Law	3
SMGT1175	Sponsorship & Trade Show Management	3
SMGT1215	Negotiation Strategies	3

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SPA & RESORT MANAGEMENT

Delivery: Evening and Online Classes
Start: Fall or Spring Semester, Full- or Part-Time

Outcomes

Spa & Resort Management A.A.S. Degree. . . . . .60 cr.
Spa & Resort Certificate . . . . 27 cr.

Major Description

This program prepares students to work in the exciting and luxurious spa and resort industries. Degree graduates will benefit from the multi-disciplinary curriculum that blends educational materials from the Exercise and Sport Science and Hospitality Lodging Management areas of study. This blended knowledge produces the fascinating and dynamic skill set required by spas and resorts; an environment in which guests come to escape and rejuvenate.

Work Environment

Employment is all about the guests and their experiences, as well as their expectations. The work environment is fast-paced. Resorts are open around-the-clock, while spas have an established schedule. Spas and resorts offer a variety of services and amenities that must be adequately and efficiently managed to provide an optimal experience for guests.

Potential Job Titles

- Aestheticians Manager
- Body Treatments Manager
- Manicure/Pedicure Manager
- Resort Activities Coordinator
- Resort Manager
- Resort Operations Manager
- Spa Director

Salary Data

- Average Wage: $23.38/hour
- Top Earners: $34.45/hour

SPA & RESORT MANAGEMENT – A.A.S. DEGREE

EXER1050	Nutrition for Health & Performance	3
EXER1065	Psychology of Sports & Performance	3
EXER1225	Introduction to the Spa Industry, Services and Treatments	2
EXER1230	Fundamentals of Exercise & Dietary Programming	3
EXER1235	Holistic Health	3
SMGT1022	Leadership	3
SMGT1171	Strategies for Sales & Closing Success	3
SMGT1174	Hospitality Law	3
SMGT1245	Introduction to Resort Operations	2
SMGT1260	Managing Teams	3
SMGT1666	Lodging Operations and Coordination	2
SMGT1670	Lodging Systems and Technology	2
SMGT1675	Hotel Front Office Management	3
SMGT1680	Hospitality Space & Logistics Management	3
SMGT1685	Hospitality and Tourism Guest Services	2
SMGT1686	Hospitality Food & Beverage Management Fundamentals	2
SMGT1687	Hospitality Lodging Issues	3
	Total Credits	**45**

General Education

ECON1100	Principles of Microeconomics	3
ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
	General Education (Goal 3 or 4)	3
	General Education Electives**	3
	Total Credits	**15**
	TOTAL PROGRAM REQUIREMENTS	**60**

*** Select General Education electives from any MnTC goal area.*

SPA & RESORT MANAGEMENT – CERTIFICATE

EXER1225	Introduction to the Spa Industry, Services and Treatments	2
EXER1230	Fundamentals of Exercise & Dietary Programming	3
EXER1235	Holistic Health	3
SMGT1171	Strategies for Sales & Closing Success	3
SMGT1245	Introduction to Resort Operations	2
SMGT1666	Lodging Operations and Coordination	2
SMGT1670	Lodging Systems and Technology	2
SMGT1675	Hotel Front Office Management	3
SMGT1680	Hospitality Space & Logistics Management	3
SMGT1685	Hospitality and Tourism Guest Services	2
SMGT1686	Hospitality Food & Beverage Management Fundamentals	2
	Total Credits	**27**
	TOTAL PROGRAM REQUIREMENTS	**27**

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BUSINESS MARKETING

Delivery: Daytime and Online Classes
Start: Fall, Spring or Summer Session, Full- or Part-Time

Outcomes
Business Marketing A.S. Degree . . . . .60 cr.
Business Marketing Specialist A.A.S. Degree . . . . .60 cr.
Marketing Communications Specialist Certificate . . . . . .28 cr.

Major Description

Marketing Communications Specialist: This certificate provides knowledge of all general marketing concepts including strategic planning, consumer buying behavior, event planning, sales, e-marketing, public relations, global marketing, product and service development, advertising, promotions, logistics, and marketing research. Graduates are versed in determining strategic efforts to reach their markets, organizing events, coordinating the distribution of products, planning advertising and promotional campaigns, establishing strong web presence for their organizations, and researching to assist in market planning.

Business Marketing: This program provides knowledge of all general marketing concepts, as mentioned in the Marketing Communications Specialist certificate, along with management concepts, budgeting and accounting, strategic planning, business laws and ethics, and proposal writing. Graduates are versed in managing projects, determining strategies to reach their markets, coordinating the distribution of products, planning advertising and promotional campaigns, establishing strong web presence for their organizations, and researching to assist in market planning.

Work Environment
Often a key department to the success of any business, marketing professionals work to develop strategies to meet the overall goals of the organization. Marketers can have creative or project management positions within a department because both are needed to grow an organization. Professionals tend to work under deadlines set from managers, vendors, or themselves. 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
- Commercial Marketing Specialist
- Marketing Administrator
- Marketing Coordinator
- Brand Manager
- Business Development Specialist
- Media Planner
- Sales Manager
- Project Manager
- Sales Specialist
- Online Marketing Coordinator

Salary Data
- Average Wage: $28.61/hour
- Top Earners: $42.59/hour

BUSINESS MARKETING SPECIALIST – A.A.S. DEGREE

ACCT1000	Principles of Accounting I	4
MKTC1000	Principles of Marketing	3
MKTC1100	Fundamentals of Sales	3
MKTC1150	Consumer and Professional Buying Behavior	3
MKTC2000	Advertising Practices and Procedures	3
MKTC2060	Proposal Writing	1
MKTC2105	Marketing Communications Writing	3
MKTC2310	Public Relations	3
MKTC2410	Marketing Visual Communications	1
MKTC2506	Digital Marketing	3
MKTC2550	International Marketing	3
MKTC2600	Marketing Research	3
MKTC2710	Innovations in Marketing	2
MKTC2815	Business Law	3
MKTC2900	Portfolio and Interviewing	1
MKTC2970	Internship	3
	Technical Elective*	3
	Total Credits	**45**

General Education

ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
	Science or Math (MnTC Goal 3 or 4)	3
	General Education Electives**	6
	Total Credits	**15**
	TOTAL PROGRAM REQUIREMENTS	**60**

Select Technical electives from the following subject areas: MKTC, BUSN, ENTR or ACCT with advisor approval.

** Select General Education electives from any MnTC goal area.*

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
MKTC2310	Public Relations	3
MKTC2410	Marketing Visual Communications	1
MKTC2506	Digital Marketing	3
MKTC2600	Marketing Research	3
MKTC2710	Innovations in Marketing	2
MKTC2815	Business Law	3
MKTC2900	Portfolio and Interviewing	1
	Total Credits	**28**
	TOTAL PROGRAM REQUIREMENTS	**28**

BUSINESS MARKETING – A.S. DEGREE

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

MKTC1000	Principles of Marketing	3
MKTC1100	Fundamentals of Sales	3
MKTC1150	Consumer and Professional Buying Behavior	3
MKTC2000	Advertising Practices and Procedures	3
MKTC2060	Proposal Writing	1
MKTC2105	Marketing Communications Writing	3
MKTC2310	Public Relations	3
MKTC2506	Digital Marketing	3
MKTC2600	Marketing Research	3
MKTC2710	Innovations in Marketing	2
MKTC2815	Business Law	3
	Total Credits	**30**

General Education

ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
	Math (MnTC Goal 4)	4
	Science (MnTC Goal 3)	3
	General Education Electives**	17
	Total Credits	**30**
	TOTAL PROGRAM REQUIREMENTS	**60**

** Students must complete a minimum of 17 elective credits from at least two of the following goal areas: 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, and Goal 10: People and the Environment.*

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MARKETING DESIGN

Delivery: Daytime and Online Classes
Start: Fall, Spring or Summer Session, Full- or Part-Time

Outcomes

Marketing Design Specialist A.A.S. Degree . . . . .60 cr.
Marketing Design Specialist Diploma . . . . .46 cr.
Marketing Event Specialist Certificate . . . . .28 cr.
Marketing Communications Specialist Certificate . . . . . .28 cr.

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.

Marketing Design Specialist: This program delivers skills of all general marketing concepts including strategic planning, consumer buying behavior, event planning, sales, e-marketing, public relations, advertising, promotions, global marketing, product and service development, logistics, and marketing research, along with basic graphic design. Graduates are prepared to design visual communications materials for marketing efforts, determine strategies to reach their markets, organize events, plan advertising and promotional campaigns, establish strong web presence for their organizations, and research to assist in market planning.

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.

Work Environment

Often a key department to the success of any business, marketing professionals work to develop strategies to meet the overall goals of the organization. Marketers with skills in creativity are often asked to organize events and design materials for their companies to promote and grow the organizations. Professionals tend to work under deadlines set from managers, vendors, or themselves. 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

- Marketing Design Specialist
- Marketing Administrator
- Marketing Coordinator
- Special Event Coordinator
- Marketing Event Specialist
- Brand Manager
- Media Planner Sales Manager
- Project Manager
- Sales Specialist
- Commercial Marketing Specialist
- Online Marketing Coordinator

Salary Data

- Average Wage: $22.53/hour
- Top Earners: $34.76/hour

MARKETING DESIGN SPECIALIST – A.A.S. DEGREE

MKTC1000	Principles of Marketing	3
MKTC1100	Fundamentals of Sales	3
MKTC1150	Consumer & Professional Buying Behavior	3
MKTC2000	Advertising Practices & Procedures	3
MKTC2105	Marketing Communications Writing	3
MKTC2310	Public Relations	3
MKTC2410	Marketing Visual Communications	1
MKTC2506	Digital Marketing	3
MKTC2550	International Marketing	3
MKTC2600	Marketing Research	3
MKTC2710	Innovations in Marketing	2
MKTC2815	Business Law	3
MKTC2900	Portfolio & Interviewing	1
MKTC2970	Internship	3
VCOM1010	Introduction to Photoshop	2
VCOM1410	Introduction to Illustrator	2
VCOM1430	Introduction to InDesign	2
VCOM2685	Web Page Construction I	2
	Total Credits	**45**

General Education

ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
	General Education Elective (Goal 3 or 4)	3
	General Education Electives**	6
	Total Credits	**15**
	TOTAL PROGRAM REQUIREMENTS	**60**

** *Select General Education electives from any MnTC goal area.*

MARKETING EVENT SPECIALIST – CERTIFICATE

MKTC1000	Principles of Marketing	3
MKTC1100	Fundamentals of Sales	3
MKTC2000	Advertising Practices and Procedures	3
MKTC2105	Marketing Communications Writing	3
MKTC2310	Public Relations	3
MKTC2710	Innovations in Marketing	2
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 – DIPLOMA

MKTC1000	Principles of Marketing	3
MKTC1100	Fundamentals of Sales	3
MKTC1150	Consumer & Professional Buying Behavior	3
MKTC2000	Advertising Practices & Procedures	3
MKTC2310	Public Relations	3
MKTC2410	Marketing Visual Communications	1
MKTC2506	Digital Marketing	3
MKTC2600	Marketing Research	3
MKTC2710	Innovations in Marketing	2
MKTC2815	Business Law	3
MKTC2900	Portfolio & Interviewing	1
VCOM1010	Introduction to Photoshop	2
VCOM1410	Introduction to Illustrator	2
VCOM1430	Introduction to InDesign	2
VCOM1435	Proofreading Fundamentals	1
VCOM2685	Web Page Construction I	2
	Total Credits	**37**

General Education

ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
	General Education Elective**	3
	Total Credits	**9**
	TOTAL PROGRAM REQUIREMENTS	**46**

MARKETING COMMUNICATIONS SPECIALIST – CERTIFICATE

MKTC1000	Principles of Marketing	3
MKTC1100	Fundamentals of Sales	3
MKTC1150	Consumer & Professional Buying Behavior	3
MKTC2000	Advertising Practices & Procedures	3
MKTC2310	Public Relations	3
MKTC2410	Marketing Visual Communications	1
MKTC2506	Digital Marketing	3
MKTC2600	Marketing Research	3
MKTC2710	Innovations in Marketing	2
MKTC2815	Business Law	3
MKTC2900	Portfolio & Interviewing	1
	Total Credits	**28**
	TOTAL PROGRAM REQUIREMENTS	**28**

DAKOTA COUNTY TECHNICAL COLLEGE

2014-2015 CATALOG

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SALES MANAGEMENT

Delivery: Daytime and Online Classes
Start: Fall, Spring or Summer Session, Full- or Part-Time

Outcomes
Sales Management Specialist A.A.S. Degree. . . . . .60 cr.
Sales Specialist Certificate . . . . 16 cr.

Major Description
Sales is an increasingly important position in contemporary organizations, especially with the growing global economy. Simply put, nothing happens unless something is sold! As a salesperson, you are in the enviable position to make something happen.

Sales Specialist: Every company has a salesperson. Nothing happens in a company until someone sells something. As a salesperson, you are in the enviable position to make something happen. Most business executives start in a sales career and move into a management role after positively affecting profits of their companies through sales. If you intend to follow a corporate path, a career in sales prepares you for a large portion of executive positions. This program gives students the skills associated with direct promotion of products and services to potential customers. Training includes basic and professional sales techniques, management and general marketing concepts, sales organization and operations, customer relations, and consumer buying behavior.

Sales Management Specialist: This program gives students the sales skills mentioned in the Sales Specialist certificate along with general marketing concepts including strategic planning, consumer buying behavior, event planning, e-marketing, public relations, advertising, promotions, global marketing, product and service development, logistics, and marketing research. This program is enhanced through management training.

Work Environment
It is hard to describe a typical day for a salesperson because every day can be different. One day you could search the Internet for prospective clients. The next few days may be spent calling these prospective clients and then an entire week may be in face-to-face sales calls. On other days, you could write up sales-call reports and prepare proposals for clients. Some sales positions allow you to work out of your home office while others require traveling.

Potential Job Titles
- Marketing Design Specialist
- Marketing Administrator
- Marketing Coordinator
- Special Event Coordinator
- Marketing Event Specialist
- Brand Manager
- Media Planner
- Sales Manager
- Project Manager
- Sales Specialist
- Commercial Marketing Specialist
- Online Sales Representative

Salary Data
- Average Wage: $35.42/hour
- Top Earners: $58.34/hour

SALES MANAGEMENT SPECIALIST – A.A.S. DEGREE

MKTC1000	Principles of Marketing	3
MKTC1100	Fundamentals of Sales	3
MKTC1120	Sales Management	3
MKTC1150	Consumer & Professional Buying Behavior	3
MKTC2000	Advertising Practices & Procedures	3
MKTC2060	Proposal Writing	1
MKTC2506	Digital Marketing	3
MKTC2550	International Marketing	3
MKTC2600	Marketing Research	3
MKTC2710	Innovations in Marketing	2
MKTC2815	Business Law	3
MKTC2900	Portfolio & Interviewing	1
MKTC2970	Internship	3
ACCT1000	Principles of Accounting I	4
SMGT1001	Foundations of Management	3
SMGT2400	Retail Management	3
	Technical Elective*	1
	Total Credits	**45**

General Education

ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
	General Education (Goal 3 or 4)	3
	General Education Electives**	6
	Total Credits	**15**
	TOTAL PROGRAM REQUIREMENTS	**60**

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

** Select General Education electives from any MnTC goal area.

SALES SPECIALIST – CERTIFICATE

MKTC1000	Principles of Marketing	3
MKTC1100	Fundamentals of Sales	3
MKTC1120	Sales Management	3
MKTC1150	Consumer and Professional Buying Behavior	3
MKTC2060	Proposal Writing	1
SMGT2400	Retail management	3
	Total Credits	**16**
	TOTAL PROGRAM REQUIREMENTS	**16**

DAKOTA COUNTY
TECHNICAL COLLEGE

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SOCIAL MEDIA SPECIALIST

Delivery: Daytime and Online Classes
Start: Fall, Spring or Summer Session, Full- or Part-Time

Outcomes

Social Media Specialist A.A.S. Degree . . . . .60 cr.
Social Media Specialist Certificate . . . . .20 cr.

Major Description

Social media is an exciting and ever-evolving field. Once used as a quirky tool to stay in touch with old friends to now a massive marketing platform, capable of delivering ultra-targeted ads to a global audience. Social media marketing generates web traffic, increases conversions and sales, and aids in branding, market research and building email lists. The growth in this industry created several different career choices, specific to social media marketing.

Social Media Specialist: Through this program you will master the tools and techniques critical to success, helping you to propel your marketing career, promote your business and boost the bottom line. You will gain skills to engage your audience and enhance your online presence by creating compelling content that generates quality traffic. Students will also learn how to leverage various monitoring methods to stay on the cutting edge of social media trends, and begin uncovering a vast array of exciting opportunities.

Work Environment

A social media marketing specialist oversees the implementation of different social media programs for clients. You will also need strong writing and grammar skills, as you may be assigned to blogging or other writing for potential clients. You will be expected to have quick turn-around on projects and be a multi-tasker. You must thrive in a entrepreneurial setting, be able to accomplish tasks on your own or as part of a team. You must be a self starter and have strong project management skills. You must already understand authentic marketing.

Potential Job Titles

- Social Media Marketing Manager
- Social Media Developer
- Social Media Manager
- Social Media Director
- Social Media Analyst

Salary Data

- Average Wage: $28.61/hour
- Top Earners: $42.59/hour

SOCIAL MEDIA SPECIALIST – A.A.S. DEGREE

MKTC1000	Principles of Marketing	3
MKTC1100	Fundamentals of Sales	3
MKTC1150	Consumer & Professional Buying Behavior	3
MKTC2000	Advertising Practices & Procedures	3
MKTC2105	Marketing Communications Writing	3
MKTC2310	Public Relations	3
MKTC2506	Digital Marketing	3
MKTC2510	Mobile Marketing	3
MKTC2550	International Marketing	3
MKTC2600	Marketing Research	3
MKTC2710	Innovations in Marketing	2
MKTC2713	Social Media Marketing Tools	3
MKTC2716	Social Media Campaigns	3
MKTC2815	Business Law	3
MKTC2900	Portfolio & Interviewing	1
MKTC2970	Internship	3
	Total Credits	**45**

General Education

ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
	General Education Elective (Goal 3 or 4)	3
	General Education Electives**	6
	Total Credits	**15**
	TOTAL PROGRAM REQUIREMENTS	**60**

** Select General Education electives from any MnTC goal area.

SOCIAL MEDIA SPECIALIST – CERTIFICATE

MKTC1000	Principles of Marketing	3
MKTC2310	Public Relations	3
MKTC2506	Digital Marketing	3
MKTC2510	Mobile Marketing	3
MKTC2710	Innovations in Marketing	2
MKTC2713	Social Media Marketing Tools	3
MKTC2716	Social Media Campaigns	3
	Total Credits	**20**
	TOTAL PROGRAM REQUIREMENTS	**20**

DAKOTA COUNTY
TECHNICAL COLLEGE

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2014-2015 CATALOG

INDIVIDUALIZED STUDIES

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

Outcome
Individualized Studies A.S. Degree . . . . .60 cr.

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.

BUSN2950	Credit for Prior Learning (or INDS1000)	1
	Technical Credits	29
	Total Credits	**30**

General Education

ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
	General Education (MnTC Goal 4)	3
	General Education (MnTC Goal 3)	3
	General Education Electives*	18
	Total Credits	**30**
	TOTAL PROGRAM REQUIREMENTS	**60**

* Students must complete a minimum of 18 elective credits from at least two of the following goal areas: 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, and Goal 10: People and the Environment.

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DESIGN & TECHNOLOGY

PROGRAMS OF STUDY

Architectural Technology

Information Systems
- Information Systems Management
- Networking Administration
- Software Development

Interior Design

Landscape Horticulture

Visual Communications
- Applied Visual Arts
- Digital Publishing
- Graphic Design Technology
- Multimedia & Web Design
- Photographic Imaging Technology
- Photography

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 iseek.org.

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ARCHITECTURAL TECHNOLOGY

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

Outcome
Architectural Technology A.A.S. Degree . . . . .60 cr.

Major Description
This program prepares the student to work in architectural and construction related fields, providing training in the latest computer-aided design (CAD), building information modeling (BIM) software, and 3D visualization. Students develop drawings for residential and commercial buildings in a hands-on environment patterned after the most up-to-date architectural offices. Realistic architectural projects provide an excellent mix of technical training and creative problem solving, including effectively incorporating sustainability and green building principles.

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: $25.59/hour
- Top Earners: $35.61/hour

ARCHITECTURAL TECHNOLOGY – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ARCT1000	Architectural Studio I	5
ARCT1020	Methods and Materials I	3
ARCT1107	CAD I	3
ARTS1310	History of Architecture (or ARTS1550 or HUMA1100)	3
	Total Credits	**14**

First Year - Second Semester

ARCT1207	CAD II	3
ARCT1500	Architectural Studio II	5
ARCT1520	Building Codes and Regulations	3
ARCT1540	Methods and Materials II	3
BIOL1110	Environmental Science	3
	Total Credits	**17**

Second Year - First Semester

ARCT2000	Mechanical and Electrical Systems	3
ARCT2020	Building Structures	3
ARCT2101	Architectural Studio III	5
ARCT2107	CAD III	3
	Total Credits	**14**

Second Year - Second Semester

ARCT2200	Architectural Studio IV	5
ARCT2970	Internship	1
ENGL1150	Composition I	3
SPEE1020	Interpersonal Communications	3
	General Education Elective**	3
	Total Credits	**15**

TOTAL PROGRAM REQUIREMENTS	**60**

*** Select General Education electives from any MnTC goal area.*

DAKOTA COUNTY
TECHNICAL COLLEGE

2014-2015 CATALOG

INTERIOR DESIGN

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

Outcomes

Interior Design A.A.S. Degree. . . . . 85 cr.
Interior Design Diploma . . . . 64 cr.

Major Description

This program prepares students to enter the interior design profession. By developing skills and the 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, architects, contractors, and tradespeople. They frequently work as members of a design team, primarily in architecture and interior design firms. This can be a highly competitive field, where use of 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: $24.82/hour
- Top Earners: $41.34/hour

INTERIOR DESIGN – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - Summer Session

ARTS1550	Art History—Renaissance to Modern	3
ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
	Total Credits	**9**

First Year - First Semester

IDES1101	Design Fundamentals	4
IDES1111	Drafting I	4
IDES1121	Critical Thinking & Programming	4
IDES1136	Presentation Techniques I	4
	Total Credits	**16**

First Year - Second Semester

IDES1207	Residential Studio I	4
IDES1211	Drafting II	4
IDES1218	Commercial Studio I	4
IDES1231	History of Architecture & Interiors	4
IDES1241	Presentation Techniques II	3
	Total Credits	**19**

Second Year - Summer Session

	MnTC Goal 4	3
	MnTC Goal 10	3
	Total Credits	**6**

Second Year - First Semester

IDES1250	Sustainable Building Systems & Regulations	4
IDES2107	Color and Light	4
IDES2111	Materials & Estimating	4
IDES2137	Commercial Studio II	4
IDES2147	Residential Studio II	4
	Total Credits	**20**

Second Year - Second Semester

IDES2201	Business Practices	4
IDES2211	Senior Studio	5
IDES2400	Portfolio	2
IDES2970	Internship	4
	Total Credits	**15**

TOTAL PROGRAM REQUIREMENTS	**85**

INTERIOR DESIGN – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

IDES1101	Design Fundamentals	4
IDES1111	Drafting I	4
IDES1121	Critical Thinking & Programming	4
IDES1136	Presentation Techniques I	4
	Total Credits	**16**

First Year - Second Semester

IDES1207	Residential Studio I	4
IDES1211	Drafting II	4
IDES1231	History of Architecture and Interiors	4
ENGL1150	Composition I	3
	Total Credits	**15**

First Year - Summer Semester

SPEE1020	Interpersonal Communication	3
	Total Credits	**3**

Second Year - First Semester

IDES1250	Sustainable Building Systems and Regulations	4
IDES2111	Materials and Estimating	4
IDES2107	Color and Light	4
IDES2147	Residential Studio II	4
	Total Credits	**16**

Second Year - Second Semester

IDES2201	Business Practices	4
IDES2211	Senior Studio	5
IDES2400	Portfolio	2
	General Education (MnTC Goal 3, 5, 8 or 10)	3
	Total Credits	**14**
	TOTAL PROGRAM REQUIREMENTS	**64**

DAKOTA COUNTY
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LANDSCAPE HORTICULTURE

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

Outcomes

Landscape Horticulture A.A.S. Degree. . . . . 72 cr.
Landscape Horticulture Diploma. . . . . 64 cr.
Landscape Horticulture Professional
Gardening Certificate. . . . . 20 cr.
Sustainable Food Systems Certificate . . . . 27 cr.

Major Description

Landscape/Horticulture

This program provides the technical, plant science and business skills needed to succeed in the Landscape/Horticulture industry. First-year students learn the fundamental science and technical skills related to all fields of Landscape/Horticulture. Second-year students elect to specialize in one of three interest areas:

- Greenhouse Production
- Landscape Construction
- Landscape Design and Sales

Sustainable Food

The Sustainable Food Systems certificate offers a practical, hands-on learning experience in the rapidly growing field of small-scale local and urban agriculture. Students will learn to grow, harvest and market sustainably grown produce. This Certificate is geared toward individuals who have an interest in growing healthy and nutritious food, based on organic, sustainable methods and possess a strong desire to engage both mind and body while working in an outdoor environment.

Work Environment

Landscape/Horticulture 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: $15.31/hour
- Top Earners: $20.30/hour

LANDSCAPE HORTICULTURE – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

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
LAHT2605	Intro. to Sustainable Landscape Practices	2
ENGL1150	Composition I	3
	Total Credits	**17**

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	Internship I	1
LAHT2970	Internship II	1
	General Education Elective (MnTC Goal 3 or 4)	3
	Total Credits	**20**

Second Year - First Semester

LAHT2000	Herbaceous Plant Materials	2
LAHT2510	Landscape Estimating	3
SPEE1020	Interpersonal Communication	3
	Technical Electives*	8
	Total Credits	**16**

Second Year - Second Semester

LAHT2500	Landscape Business Management	4
LAHT2970	Internship III	1
LAHT2970	Internship IV	1
	Technical Electives*	7
ECON1100	Principles of Microeconomics	3
	General Education Elective**	3
	Total Credits	**19**

TOTAL PROGRAM REQUIREMENTS	**72**

* Select Technical electives from the following subject areas: LAHT

** Select General Education electives from any MnTC goal area.

LANDSCAPE HORTICULTURE – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

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
LAHT2605	Intro. to Sustainable Landscape Practices	2
ENGL1150	Composition I	3
	Total Credits	**17**

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	Internship I	1
LAHT2970	Internship II	1
	Total Credits	**17**

Second Year - First Semester

LAHT2000	Herbaceous Plant Materials	2
LAHT2510	Landscape Estimating	3
SPEE1020	Interpersonal Communication	3
	Technical Electives*	7
	Total Credits	**15**

Second Year - Second Semester

LAHT2500	Landscape Business Management	4
LAHT2970	Internship III	1
LAHT2970	Internship IV	1
	Technical Electives*	6
ECON1100	Principles of Microeconomics	3
	Total Credits	**15**

TOTAL PROGRAM REQUIREMENTS	**64**

* Select Technical electives from the following subject areas: LAHT

PROFESSIONAL GARDENING - CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

LAHT1010	Soil Science	3
LAHT1100	Woody Plant Materials I	2
LAHT1200	Plant Pests	3
LAHT2000	Herbaceous Plant Materials	2
LAHT2520	Professional Gardening	2
	Total Credits	**12**

First Year - Second Semester

LAHT1000	Plant Science	2
LAHT1110	Woody Plant Materials II	2
LAHT1420	Protected Horticulture	3
LAHT2970	Professional Gardening Internship	1
	Total Credits	**8**

TOTAL PROGRAM REQUIREMENTS	**20**

2014-2015 CATALOG

SUSTAINABLE FOOD SYSTEMS - CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

LAHT1010	Soil Science	3
LAHT1200	Plant Pests	3
LAHT1420	Protected Horticulture	3
LAHT1700	Introduction to Sustainable Food Systems	3
LAHT2605	Introduction to Sustainable Landscape Practices	2
	Total Credits	**14**

First Year - Second Semester

ENTR1170	Introduction to Small Business	2
LAHT1000	Plant Science	2
LAHT1740	Infrastructure for Sustainable Food Systems	2
LAHT2020	Permaculture Based Food Systems Design	2
LAHT2040	Sustainable Food Crop Production	3
LAHT2970	Sustainable Food Systems Internship I	1
LAHT2970	Sustainable Food Systems Internship II	1
	Total Credits	**13**

TOTAL PROGRAM REQUIREMENTS	**27**

TECHNICAL ELECTIVE COURSES

LAHT1700	Introduction to Sustainable Food Systems	2
LAHT1740	Infrastructure for Sustainable Food Systems	2
LAHT2020	Permaculture Based Food System Design	2
LAHT2040	Sustainable Food Crop Production	3
LAHT2100	Landscape Construction II	3
LAHT2110	Irrigation and Lighting	3
LAHT2120	Landscape Surveying	1
LAHT2135	Site Grading & Drainage for Stormwater Mgmt.	2
LAHT2202	Landscape Design II	4
LAHT2210	Design Problems	3
LAHT2235	SketchUp for Landscape Designers	2
LAHT2315	Greenhouse Operations I	2
LAHT2325	Greenhouse Operations II	3
LAHT2405	Pesticide Applicator Lic. for Landscape Prof.	2
LAHT2520	Professional Gardening	2
LAHT2620	Water Gardening	1

DAKOTA COUNTY
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APPLIED VISUAL ARTS

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

Outcomes
Applied Visual Arts A.A.S. Degree . . . . 72 cr.

Major Description
This program prepares students for careers in commercial art and design. A unique combination of courses offers training in the traditional techniques of drawing and painting in conjunction with digital art techniques using computer graphics programs. The coursework trains students in the design process to explore, plan, design and produce visual solutions to communications problems. A foundation in art techniques, design principles, creative problem solving, concept development, illustration, typography and layout are established. Students will gain the skills necessary for an entry-level position in the commercial art field and will have employment opportunities in a number of related industries, including marketing, publishing, advertising and animation.

Work Environment
Visual artists often work in art or design studios both private and commercial. Job opportunities exist in publishing, advertising, marketing and animation 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
- Production Illustrator
- Visual Artist
- Historical Artist
- Story Artist
- Layout Artist
- Digital Artist
- Muralist
- Commerical Artist
- Graphic Artist

Salary Data
- Average Wage: $23.75/hour
- Top Earners: $34.29/hour

APPLIED VISUAL ARTS – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

VCOM1001	Introduction To Visual Communications	2
VCOM1006	Color Theory and Applications	2
VCOM1016	Typography and Layout I	3
VCOM1030	Visual Design Fundamentals	3
VCOM1041	Drawing I	3
VCOM1410	Introduction to Illustrator	2
ENGL1150	Composition I	3
	Total Credits	**18**

First Year - Second Semester

VCOM1010	Introduction to Photoshop	2
VCOM1021	Introduction to Photography	3
VCOM1060	Creative Problem Solving	3
VCOM1096	Illustration Fundamentals	2
VCOM2041	Drawing II	3
SPEE1020	Interpersonal Communications	3
	Technical Electives	2
	Total Credits	**18**

Second Year - First Semester

VCOM1086	Watercolor and Gouache Painting	3
VCOM1430	Introduction to InDesign	2
VCOM2096	Story, Sequence and Animation	3
VCOM2420	Advanced Computer Illustration	3
ARTS1550	Art History—Renaissance to Modern	3
	General Education (MnTC Goal 3 or 4)**	3
	Total Credits	**17**

Second Year - Second Semester

VCOM2016	Typography and Layout II	3
VCOM2020	Digital Painting and Drawing	2
VCOM2097	Advertising and Editorial Illustration	3
VCOM2825	Visual Art Career Preparation	3
	Technical Electives	5
	General Education Electives**	3
	Total Credits	**19**

TOTAL PROGRAM REQUIREMENTS	**72**

** Select General Education electives from any MnTC goal area.

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DIGITAL PUBLISHING

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

Outcomes
Digital Publishing A.A.S. Degree . . . . .60 cr.
Digital Publishing Diploma . . . . .50 cr.

Major Description
This program prepares students to enter into the Graphic Communication field—particularly printing and publishing. Students will develop an understanding of the entire production process from concept and design through printing and manufacturing. The program will prepare you with an understanding of workflow while working under tight deadlines on projects similar to those in the industry; while taking into consideration cost and environmental issues. Students will work with projects in both traditional print and digital formats. An internship is required as part of this learning process.

Work Environment
Electronic publishers generally work indoors, within climate-controlled office settings. They are subject to tight deadlines and may 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: $22.53/hour
- Top Earners: $34.76/hour

DIGITAL PUBLISHING – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

Code	Course	Credits
VCOM1001	Introduction to Visual Communications	2
VCOM1006	Color Theory and Applications	2
VCOM1016	Typography and Layout I	3
VCOM1030	Visual Design Fundamentals	3
VCOM1422	Print Processes I	2
ENGL1150	Composition I	3
	Total Credits	**15**

First Year - Second Semester

Code	Course	Credits
VCOM1410	Introduction to Illustrator	2
VCOM1430	Introduction to InDesign	2
VCOM2016	Typography and Layout II	3
	Technical Electives*	5
SPEE1020	Interpersonal Communications	3
	Total Credits	**15**

Second Year - First Semester

Code	Course	Credits
VCOM1010	Introduction to Photoshop	2
VCOM2415	Advanced Electronic Publishing	3
VCOM2422	Print Processes II	3
VCOM2620	Digital Delivery	3
	Technical Electives*	2
	General Education (MnTC Goal 3 or 4)	3
	Total Credits	**16**

Second Year - Second Semester

Code	Course	Credits
VCOM2423	Print Management	2
VCOM2675	Designing for Mobile Apps	2
VCOM2970	Internship	4
ENGL1125	Business Writing	3
	General Education Elective**	3
	Total Credits	**14**

TOTAL PROGRAM REQUIREMENTS 60

* Select Technical electives from the following subject areas: VCOM

** Select General Education electives from any MnTC goal area.

DIGITAL PUBLISHING – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

VCOM1001	Introduction to Visual Communications	2
VCOM1006	Color Theory and Applications	2
VCOM1016	Typography and Layout I	3
VCOM1030	Visual Design Fundamentals	3
VCOM1422	Print Processes I	2
	Total Credits	**12**

First Year - Second Semester

VCOM1410	Introduction to Illustrator	2
VCOM1430	Introduction to InDesign	2
VCOM2016	Typography and Layout II	3
ENGL1150	Composition I	3
SPEE1020	Interpersonal Communications	3
	Total Credits	**13**

Second Year - First Semester

VCOM1010	Introduction to Photoshop	2
VCOM1032	Interactive Design Fundamentals	3
VCOM2415	Advanced Electronic Publishing	3
VCOM2422	Print Processes II	3
VCOM2620	Digital Delivery	3
	Total Credits	**14**

Second Year - Second Semester

VCOM2423	Print Management	2
VCOM2675	Designing for Mobile Apps	2
VCOM2970	Internship	4
ENGL1125	Business Writing	3
	Total Credits	**11**
	TOTAL PROGRAM REQUIREMENTS	**50**

* Select Technical electives from the following subject areas: VCOM

** Select General Education electives from any MnTC goal area.

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GRAPHIC DESIGN TECHNOLOGY

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

Outcomes

Graphic Design Technology A.A.S. Degree . . . . 70 cr.
Graphic Design Technology Diploma . . . . 64 cr.

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: $22.53/hour
- Top Earners: $34.76/hour

GRAPHIC DESIGN TECHNOLOGY – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

VCOM1001	Introduction to Visual Communications	2
VCOM1006	Color Theory and Applications	2
VCOM1016	Typography and Layout I	3
VCOM1021	Introduction to Photography	3
VCOM1030	Visual Design Fundamentals	3
VCOM1422	Print Processes I	2
ENGL1150	Composition I	3
	Total Credits	**18**

First Year - Second Semester

VCOM1060	Creative Problem Solving	3
VCOM1410	Introduction to Illustrator	2
VCOM2016	Typography and Layout II	3
	Technical Electives	4
SPEE1020	Interpersonal Communication	3
	General Education (MnTC Goal 3 or 4)	3
	Total Credits	**18**

Second Year - First Semester

VCOM1010	Introduction to Photoshop	2
VCOM1041	Drawing I	3
VCOM1430	Introduction to InDesign	2
VCOM2422	Print Processes II	3
VCOM2685	Web Page Construction I	2
	General Education Electives	4
	Total Credits	**16**

Second Year - Second Semester

VCOM1052	Design Drawing	2
VCOM2400	Advanced Photoshop	3
VCOM2415	Advanced Electronic Publishing	3
VCOM2420	Advanced Computer Illustration	3
VCOM2680	Introduction to Flash	2
VCOM2721	Portfolio for Graphic Design	2
VCOM2730	Career Research Skills	1
	General Education Electives**	2
	Total Credits	**18**

TOTAL PROGRAM REQUIREMENTS	**70**

* Select Technical electives from the following subject areas: VCOM

** Select General Education electives from any MnTC goal area.

GRAPHIC DESIGN TECHNOLOGY – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

VCOM1001	Introduction to Visual Communications	2
VCOM1006	Color Theory and Applications	2
VCOM1016	Typography and Layout I	3
VCOM1021	Introduction to Photography	3
VCOM1030	Visual Design Fundamentals	3
ENGL1150	Composition I	3
	Total Credits	**16**

First Year - Second Semester

VCOM1060	Creative Problem Solving	3
VCOM1410	Introduction to Illustrator	2
VCOM1422	Print Processes I	2
	Technical Electives*	6
SPEE1020	Interpersonal Communication	3
	Total Credits	**16**

Second Year - First Semester

VCOM1010	Introduction to Photoshop	2
VCOM1052	Design Drawing	2
VCOM1430	Introduction to InDesign	2
VCOM2422	Print Processes II	3
VCOM2680	Introduction to Flash	2
VCOM2685	Web Page Construction I	2
	General Education Electives**	3
	Total Credits	**16**

Second Year - Second Semester

VCOM2400	Advanced Photoshop	3
VCOM2415	Advanced Electronic Publishing	3
VCOM2420	Advanced Computer Illustration	3
VCOM2721	Portfolio for Graphic Design	2
VCOM2730	Career Research Skills	1
	General Education Electives**	4
	Total Credits	**16**

	TOTAL PROGRAM REQUIREMENTS	**64**

* Select Technical electives from the following subject areas: VCOM

** Select General Education electives from any MnTC goal area.

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MULTIMEDIA & WEB DESIGN

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

Outcomes

Digital Animation Certificate . . . . 17 cr.
Multimedia & Web Page Design A.A.S. Degree . . . . 70 cr.
Interactive Media Design Certificate. . . . . 29 cr.
Web Design Certificate . . . . 17 cr.

Major Description

Multimedia & Web Page Design A.A.S. Degree: This program prepares students to create interactive media and content for websites, applications and stand-alone delivery. Using industry-standard software, students design and develop images, 2D and 3D animations, audio, video, and navigation for use in the advertising, educational and entertainment industries. They also study interface design, basic web page programming, usability, testing, and project management.

Interactive Media Design Certificate: This program emphasizes creative concepts of the architecture and content creation for multimedia. The certificate offers introductory to advance coursework, including animation, 3D modeling, web page construction, audio and video and user interaction.

Web Design Certificate: This program emphasizes webpage architecture for the graphic designer. Use of XHTML/CSS, Adobe applications such as Dreamweaver and Fireworks, as well as Content Management Software architecture. Concepts of new-media and JavaScript are practiced.

Digital Animation Certificate: This program emphasizes creative content for multimedia use. The certificate classes focus on story telling, drawing for use in digital environments, and animating and include sound, video and 3D modeling.

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

- Average Wage: $25.88/hour
- Top Earners: $39.49/hour

DIGITAL ANIMATION – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

VCOM1410	Introduction to Illustrator	2
VCOM2020	Digital Painting and Drawing	2
VCOM2096	Story, Sequence and Animation	3
VCOM2605	Audio/Video for Presentations	3
VCOM2610	Digital Animation	2
VCOM2660	3D Modeling and Animation	3
VCOM2680	Introduction to Flash	2
	Total Credits	**17**
	TOTAL PROGRAM REQUIREMENTS	**17**

MULTIMEDIA & WEB DESIGN – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

VCOM1001	Introduction to Visual Communications	2
VCOM1006	Color Theory and Applications	2
VCOM1016	Typography and Layout I	3
VCOM1021	Introduction to Photography	3
VCOM1030	Visual Design Fundamentals	3
VCOM1032	Interactive Design Fundamentals	2
ENGL1150	Composition I	3
	Total Credits	**18**

First Year - Second Semester

VCOM1010	Introduction to Photoshop	2
VCOM1052	Design Drawing	2
VCOM1410	Introduction to Illustrator	2
VCOM1430	Introduction to InDesign	2
VCOM2680	Introduction to Flash	2
VCOM2685	Web Page Construction I	2
	Technical Electives*	3
	General Education (MnTC Goal 3 or 4)	3
	Total Credits	**18**

Second Year - First Semester

VCOM1060	Creative Problem Solving	3
VCOM2660	3D Modeling and Animation	3
VCOM2694	Advanced Multimedia Production	2
	Technical Electives	3
SPEE1020	Interpersonal Communication	3
	General Education Elective**	3
	Total Credits	**17**

Second Year - Second Semester

VCOM2605	Audio/Video for Presentations	3
VCOM2650	Multimedia Project Management	2
VCOM2690	Web Page Construction II	3
VCOM2701	Advanced Flash Scripting	3
VCOM2722	Portfolio for Multimedia and Web Design	2
VCOM2730	Career Research Skills	1
	General Education Elective**	3
	Total Credits	**17**
	TOTAL PROGRAM REQUIREMENTS	**70**

* Select Technical electives from the following subject areas: VCOM

** Select General Education electives from any MnTC goal area.

INTERACTIVE MEDIA DESIGN – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

VCOM1032	Interactive Design Fundamentals	2
VCOM2610	Digital Animation	2
VCOM2660	3D Modeling and Animation	3
VCOM2680	Introduction to Flash	2
VCOM2685	Web Page Construction I	2
VCOM2694	Advanced Multimedia Production	2
	Total Credits	**13**

First Year - Second Semester

VCOM2605	Audio/Video for Presentations	3
VCOM2675	Designing for Mobile Apps	2
VCOM2690	Web Page Construction II	3
VCOM2701	Advanced Flash Scripting	3
VCOM2705	Javascript for Designers	2
VCOM2710	Web Page Construction III	3
	Total Credits	**16**
	TOTAL PROGRAM REQUIREMENTS	**29**

WEB DESIGN – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

VCOM1016	Typography and Layout I	3
VCOM1032	Interactive Design Fundamentals	2
VCOM2675	Designing for Mobile Apps	2
VCOM2685	Web Page Construction I	2
VCOM2690	Web Page Construction II	3
VCOM2705	Javascript for Designers	2
VCOM2710	Web Page Construction III	3
	Total Credits	**17**
	TOTAL PROGRAM REQUIREMENTS	**17**

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PHOTOGRAPHIC IMAGING TECHNOLOGY

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

Outcomes

Photographic Imaging Technology A.A.S. Degree. . . . . . 60 cr.
Photographic Imaging Technology Diploma. . . . . 32 cr.
Digital Imaging Technician Certificate . . . . 24 cr.
Photographer Assistant Certificate. . . . . 19 cr.

Major Description

Students in this program use technical and creative skills to plan and capture unique photographs and then process, manage, and digitally enhance the images to produce professional quality prints. The program emphasizes 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, computer, and digital imaging equipment, students practice the hands-on skills they will utilize throughout their careers in the photo industry.

Work Environment

Graduates become photographers of all types as well as traditional and digital imaging 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: $21.68/hour
- Top Earners: $39.62/hour

PHOTOGRAPHIC IMAGING TECHNOLOGY – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

VCOM1OO1	Introduction to Visual Communications	2
VCOM1021	Introduction to Photography	3
VCOM1515	Photo Lighting Techniques	2
VCOM1523	Film and Darkroom	2
	Technical Elective*	1
	General Education (MnTC Goal 3 or 4)	3
	Total Credits	**13**

First Year - Second Semester

VCOM1010	Introduction to Photoshop	2
VCOM1300	Introduction to Adobe Lightroom	2
VCOM1570	Portrait Photography	2
VCOM1580	Introduction to Digital Imaging	2
VCOM1730	Advanced Photo Lighting Techniques	2
	Technical Elective*	2
SPEE1020	Interpersonal Communications	3
	Total Credits	**15**

Second Year - First Semester

VCOM1430	Introduction to InDesign	2
VCOM2510	Commercial Photography	2
VCOM2520	Digital Photography	2
VCOM2551	Digital Studio Work flow I	2
	Technical Electives*	2
ENGL1150	Composition I	3
	General Education Elective**	3
	Total Credits	**16**

Second Year - Second Semester

VCOM1565	Color Printing Systems	4
VCOM2552	Digital Studio Work flow II	2
VCOM2581	Photography Portfolio	2
VCOM2605	Audio/Video for Presentation	3
	Technical Electives*	2
	General Education Elective**	3
	Total Credits	**16**

TOTAL PROGRAM REQUIREMENTS	**60**

* Select Technical electives from the following subject areas: VCOM

** Select General Education electives from any MnTC goal area.

PHOTOGRAPHIC IMAGING TECHNOLOGY – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

VCOM1001	Introduction to Visual Communications	2
VCOM1021	Introduction to Photography	3
VCOM1515	Photo Lighting Techniques	2
VCOM1523	Film and Darkroom	2
	Technical Electives*	4
	General Education Elective**	3
	Total Credits	**16**

First Year - Second Semester

VCOM1010	Introduction to Photoshop	2
VCOM1565	Color Printing Systems	4
VCOM1570	Portrait Photography	2
VCOM1580	Introduction to Digital Imaging	2
VCOM2581	Photography Portfolio	2
	Technical Electives*	4
	Total Credits	**16**
	TOTAL PROGRAM REQUIREMENTS	**32**

* Select Technical electives from the following subject areas: VCOM

** Select General Education elective: SPEE1020 or ENGL 1150

DIGITAL IMAGING TECHNICIAN – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

VCOM1001	Introduction to Visual Communications	2
VCOM1010	Introduction to Photoshop	2
VCOM1021	Introduction to Photography	3
VCOM1410	Introduction to Illustrator	2
VCOM1430	Introduction to InDesign	2
VCOM1580	Introduction to Digital Imaging	2
	Technical Elective*	2
	Total Credits	**15**

First Year - Second Semester

VCOM2520	Digital Photography	2
VCOM2552	Digital Studio Workflow II	2
VCOM2581	Photography Portfolio	2
VCOM2605	Audio/Visual for Presentations	3
	Total Credits	**9**
	TOTAL PROGRAM REQUIREMENTS	**24**

* Select Technical electives from the following subject areas: VCOM

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PHOTOGRAPHER ASSISTANT – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

VCOM1010	Introduction to Photoshop	2
VCOM1021	Introduction to Photography	3
VCOM1515	Photo Lighting Techniques	2
VCOM1570	Portrait Photography	2
VCOM2540	The Business of Photography	2
	Total Credits	**11**

First Year - Second Semester

VCOM1360	Photography Workshop	1
VCOM2510	Commercial Photography	2
VCOM2520	Digital Photography	2
VCOM2581	Photography Portfolio	2
	Technical Elective*	1
	Total Credits	**8**
	TOTAL PROGRAM REQUIREMENTS	**19**

* Select Technical electives from the following subject areas: VCOM

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PHOTOGRAPHY

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

Outcome
Photography A.S. Degree . . . . .60 cr.

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

1. Acceptance to a four-year college

2. Entering a specific sector of the visual communications workplace

3. Starting a photography business

Work Environment
Professional photographers, self-employed or employed by small, medium, and large organizations, may work whithin multitude niches. Harnessing creativity to their strong technical skills, photographers typically gravitate towards an area of specializing in the fields of scientific, commercial, market-based, or artistic expression.

Potential Job Titles
- Advertising Photographer++
- Forensic Photographe++r
- Medical Photographer++
- Photojournalist++
- Portrait Photographer
- Sports Photographer
- Visual Information Media Generalist
- Wedding Photographer

++ Additional education may be required

Salary Data
- Average Wage: $21.68/hour
- Top Earners: $39.62/hour

PHOTOGRAPHY – A.S. DEGREE

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

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

VCOM1010	Introduction to Photoshop	2
VCOM1021	Introduction to Photography	3
VCOM1515	Photo Lighting Techniques	2
	Technical Elective*	2
ARTS1001	Introduction to Visual Arts	3
ARTS1201	The Creative Process	3
	Total Credits	**15**

First Year - Second Semester

ARTS1101	History of Photography	3
VCOM1570	Portrait Photography	2
VCOM1580	Introduction to Digital Imaging	2
SPEE1020	Interpersonal Communication	3
	General Education Electives**	4
	Total Credits	**14**

Second Year - First Semester

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

Second Year - Second Semester

VCOM1730	Advanced Lighting Techniques	2
VCOM2552	Digital Studio Workflow II	2
VCOM2581	Photography Portfolio	2
	Technical Elective*	2
	General Education (MnTC Goal 3)	3
	General Education Electives**	4
	Total Credits	**15**

TOTAL PROGRAM REQUIREMENTS	**60**

* Select Technical electives from the following subject areas: ENTR and VCOM

** Select General Education electives from any MnTC goal area.

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INFORMATION SYSTEMS MANAGEMENT

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

Outcomes

Information Systems Mgmt. A.A.S. Degree . . . . 71 cr.
Information Systems Mgmt. Diploma . . . . .60 cr.

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

Information systems managers experience a high level of social interaction where they use well-developed analytical skills. Job duties generally keep them indoors, and 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

- Average Wage: $25.29/hour
- Top Earners: $36.31/hour

INFORMATION SYSTEMS MANAGEMENT – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ISTC1015	Supporting Business Applications	3
ISTC1030	Operating Systems I	3
ISTC1045	Network Systems I: Introduction to Networking	3
ISTC1100	Business Communications	3
SPEE1020	Interpersonal Communication	3
	Total Credits	**15**

First Year - Second Semester

ISTC1000	Introduction to Information Systems Mgmt.	3
ISTC1010	Microcomputer Maintenance	3
ISTC1033	Operating Systems II	3
ISTC1050	Database Systems	3
ISTC1060	Security I	3
ENGL1150	Composition I	3
	Total Credits	**18**

Second Year - First Semester

ISTC1300	Introduction to Programming	3
ISTC1400	Wireless Systems	3
ISTC2035	Operating System III	3
ISTC2040	Database Management	3
MATS1251	Statistics (or MATS1300 or PHIL1250)	3
	General Education Elective**	3
	Total Credits	**18**

Second Year - Second Semester

ISTC1230	System Analysis and Design	3
ISTC2065	Security II: Firewalls	3
ISTC2100	Project Management (or ISTC2970 Internship)	3
ISTC2120	Financial Accounting for Information Systems	3
ISTC2150	Virtualization, Storage, and Cloud Technologies	3
	General Education Electives**	3
	Total Credits	**18**

TOTAL PROGRAM REQUIREMENTS	**69**

*** Select General Education electives from any MnTC goal area.*

INFORMATION SYSTEMS MANAGEMENT – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ISTC1015	Supporting Business Applications	3
ISTC1030	Operating Systems I	3
ISTC1045	Network Systems I: Introduction to Networking	3
ISTC1100	Business Communications	3
SPEE1020	Interpersonal Communication	3
	Total Credits	**15**

First Year - Second Semester

ISTC1000	Introduction to Information Systems Mgmt.	3
ISTC1010	Microcomputer Maintenance	3
ISTC1033	Operating Systems II	3
ISTC1050	Database Systems	3
ISTC1060	Security I	3
	Total Credits	**15**

Second Year - First Semester

ISTC1300	Introduction to Programming	3
ISTC1400	Wireless Systems	3
ISTC2035	Operating System III	3
ISTC2040	Database Management	3
ENGL1150	Composition I	3
	Total Credits	**15**

Second Year - Second Semester

ISTC1230	System Analysis and Design	3
ISTC2065	Security II: Firewalls	3
ISTC2120	Financial Accounting for Information Systems	3
ISTC2150	Virtualization, Storage, and Cloud Technologies	3
	General Education Elective**	3
	Total Credits	**15**
	TOTAL PROGRAM REQUIREMENTS	**60**

*** Select General Education electives from any MnTC goal area.*

DAKOTA COUNTY
TECHNICAL COLLEGE

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2014-2015 CATALOG

NETWORKING ADMINISTRATION

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

Outcomes
Networking Administration A.A.S. Degree . . . . 71 cr.
Networking Administration Diploma . . . . .60 cr.
PC Technician Certificate . . . . .30 cr.

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: $34.05/hour
- Top Earners: $46.79/hour

NETWORKING ADMINISTRATION – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ISTC1015	Supporting Business Applications	3
ISTC1030	Operating Systems I	3
ISTC1045	Network Systems I: Introduction to Networking	3
ISTC1100	Business Communications	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
ISTC1060	Security I	3
ISTC1400	Wireless Systems	3
ENGL1150	Composition I	3
	Total Credits	**18**

Second Year - First Semester

ISTC2006	Network Systems II: Routing and Switching Essentials	3
ISTC2011	Network Systems III: Scaling Networks	3
ISTC2035	Operating System III	3
ISTC2040	Database Management	3
	General Education Elective**	6
	Total Credits	**18**

Second Year - Second Semester

ISTC2016	Network Systems IV: Connecting Networks	3
ISTC2065	Security II: Firewalls	3
ISTC2070	Security III: Forensics	3
ISTC2100	Project Management (or ISTC2970 Internship)	3
ISTC2150	Virtualization, Storage, and Cloud Technologies	3
MATS1251	Statistics (or MATS1300 or PHIL1250)	3
	Total Credits	**18**

TOTAL PROGRAM REQUIREMENTS	**69**

** Select General Education electives from any MnTC goal area.

NETWORKING ADMINISTRATION – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ISTC1015	Supporting Business Applications	3
ISTC1030	Operating Systems I	3
ISTC1045	Network Systems I: Introduction to Networking	3
ISTC1100	Business Communications	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
ISTC1060	Security I	3
ISTC1400	Wireless Systems	3
	Total Credits	**15**

Second Year - First Semester

ISTC2006	Network Systems II: Routing and Switching Essentials	3
ISTC2011	Network Systems III: Scaling Networks	3
ISTC2035	Operating System III	3
ISTC2040	Database Management	3
ENGL1150	Composition I	3
	Total Credits	**15**

Second Year - Second Semester

ISTC2016	Network Systems IV: Connecting Networks	3
ISTC2065	Security II: Firewalls	3
ISTC2070	Security III: Forensics	3
ISTC2150	Virtualization, Storage, and Cloud Technologies	3
	General Education Elective**	3
	Total Credits	**15**

	TOTAL PROGRAM REQUIREMENTS	**60**

*** Select General Education electives from any MnTC goal area.*

PC TECHNICIAN – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ISTC1015	Supporting Business Applications	3
ISTC1030	Operating Systems I	3
ISTC1045	Network Systems I: Introduction to Networking	3
ISTC1100	Business Communications	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
ISTC1060	Security I	3
ISTC1400	Wireless Systems	3
	Total Credits	**15**

	TOTAL PROGRAM REQUIREMENTS	**30**

DAKOTA COUNTY
TECHNICAL COLLEGE

2014-2015 CATALOG

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SOFTWARE DEVELOPMENT

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

Outcomes

Software Development A.A.S. Degree . . . . 69 cr.
Software Development Diploma . . . . 60 cr.
Web Developer Diploma . . . . 32 cr.

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 conditions are generally indoors in 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: $34.65/hour
- Top Earners: $49.30/hour

SOFTWARE DEVELOPMENT – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ISTC1015	Supporting Business Applications	3
ISTC1030	Operating Systems I	3
ISTC1045	Network Systems I: Introduction to Networking	3
ISTC1100	Business Communications	3
ISTC1300	Introduction to Programming	3
SPEE1020	Interpersonal Communication	3
	Total Credits	**18**

First Year - Second Semester

ISTC1033	Operating Systems II	3
ISTC1050	Database Systems	3
ISTC1060	Security I	3
ISTC2310	Java I	3
ISTC2320	.NET I	3
ENGL1150	Composition I	3
	Total Credits	**18**

Second Year - First Semester

ISTC1205	Web Client Programming	3
ISTC1230	System Analysis and Design	3
ISTC2315	Java II	3
ISTC2325	.NET II	3
MATS1251	Statistics (or MATS1300 or PHIL1250)	3
	General Education Elective**	3
	Total Credits	**18**

Second Year - Second Semester

ISTC1210	Web Server Programming	3
ISTC2050	Data Structures	3
ISTC2100	Project Management (or ISTC2970 Internship)	3
ISTC2330	Cross-Platform Mobile App. Development	3
	General Education Elective**	3
	Total Credits	**15**

	TOTAL PROGRAM REQUIREMENTS	**69**

*** Select General Education electives from any MnTC goal area.*

SOFTWARE DEVELOPMENT – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ISTC1015	Supporting Business Applications	3
ISTC1030	Operating Systems I	3
ISTC1045	Network Systems I: Introduction to Networking	3
ISTC1100	Business Communications	3
ISTC1300	Introduction to Programming	3
	Total Credits	**15**

First Year - Second Semester

ISTC1033	Operating Systems II	3
ISTC1050	Database Systems	3
ISTC1060	Security I	3
ISTC2310	Java I	3
ISTC2320	.NET I	3
	Total Credits	**15**

Second Year - First Semester

ISTC1205	Web Client Programming	3
ISTC1230	System Analysis and Design	3
ISTC2315	Java II	3
ISTC2325	.NET II	3
SPEE1020	Interpersonal Communication	3
	Total Credits	**15**

Second Year - Second Semester

ISTC1210	Web Server Programming	3
ISTC2050	Data Structures	3
ISTC2330	Cross-Platform Mobile App. Development	3
ENGL1150	Composition I	3
	General Education Elective**	3
	Total Credits	**15**
	TOTAL PROGRAM REQUIREMENTS	**60**

*** Select General Education electives from any MnTC goal area.*

WEB DEVELOPER – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ISTC1015	Supporting Business Applications	3
ISTC1030	Operating Systems I	3
ISTC1100	Business Communications	3
ISTC1300	Introduction to Programming	3
VCOM1032	Interactive Design Fundamentals	2
	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**

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HEALTH & HUMAN SERVICES

PROGRAMS OF STUDY

Dental Assistant
Early Childhood & Youth Development
Exercise & Sport Science
Health Care Technician
Medical Assistant
Nursing Assistant
Sport Management

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 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.

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DENTAL ASSISTANT

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

Outcomes

Dental Assistant A.A.S. Degree . . . . .60 cr.
Dental Assistant Diploma . . . . .40 cr.

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. Excellent communication skills are required for patient education.

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: $20.72/hour
- Top Earners: $26.76/hour

DENTAL ASSISTANT – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

DENT1100	Dental Science	4
DENT1110	Pre-Clinical Dental Assisting	3
DENT1120	Dental Health	2
DENT1135	Chairside Assisting I	4
DENT1145	Dental Materials	4
	Total Credits	**17**

First Year - Second Semester

DENT1250	Radiology	5
DENT1260	Expanded Functions	5
DENT1275	Chairside Assisting II	4
DENT1280	Dental Practice Management	2
	Total Credits	**16**

First Year - Summer Session

DENT2970	Externship	7
	Total Credits	**7**

Second Year - First Semester

ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
PHIL1350	Medical Ethics	3
PSYC1350	Lifespan Development	4
	General Education Elective**	3
	General Education (MnTC Goal 3 or 4)	4
	Total Credits	**20**
	TOTAL PROGRAM REQUIREMENTS	**60**

*** Select General Education electives from any MnTC goal area.*

DENTAL ASSISTANT – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

DENT1100	Dental Science	4
DENT1110	Pre-Clinical Dental Assisting	3
DENT1120	Dental Health	2
DENT1135	Chairside Assisting I	4
DENT1145	Dental Materials	4
	Total Credits	**17**

First Year - Second Semester

DENT1250	Radiology	5
DENT1260	Expanded Functions	5
DENT1275	Chairside Assisting II	4
DENT1280	Dental Practice Management	2
	Total Credits	**16**

First Year - Summer Session

DENT2970	Externship	7
	Total Credits	**7**
	TOTAL PROGRAM REQUIREMENTS	**40**

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2014-2015 CATALOG

EARLY CHILDHOOD & YOUTH DEVELOPMENT

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

All of the following outcomes require a clear MN Criminal Background Study.

Outcomes

Early Childhood & Youth Development A.S. Degree . . . . . .60 cr.
Early Childhood & Youth Development A.A.S. Degree. . . . .60 cr.
Child Life Assistant A.A.S. Degree . . . . .60 cr.
Early Childhood & Youth Development Diploma . . . . 33 cr.
Early Childhood & Youth Development Certificate. . . . . . . 17 cr.
National CDA Training Program Certificate. . . . . 12 cr.

Major Description

There are a wide variety of career opportunities for working in the field of Early Childhood & Youth Development. These professions are projected to increase. All of the following outcomes require a clear Minnesota criminal background study

Early Childhood & Youth Development A.S./A.A.S. Degree: This program prepares students for employment in a variety of early childhood and youth 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. This program is available in the classroom and most courses are also available online.

Child Life Assistant A.A.S. Degree: This program delivers knowledge and skills necessary for working with children in hospitalized settings or with health care needs. Child life assistants are part of the team responsible for supporting children and families through health care experiences and helping them effectively cope by using developmental play and normalized activities in their environment. This program is available in the classroom and most courses are also available online.

Early Childhood & Youth Development Diploma: This program prepares individuals who would like to work in a child care center or preschool as a lead teacher or in a family child care program. This program is available in the classroom and many courses are also available online.

Early Childhood & Youth Development Certificate: This program prepares individuals for work in a child care center or preschool as an assistant teacher or in a family child care program. This program is available in the classroom and online.

National Child Development Associate (CDA) Training Program: This certificate provides knowledge of learning environments, principles of child development and behavior, working with families, child health and safety, and professionalism. It fulfills the training requirement for the National CDA credential. This certificate is available online.

Work Environment

Early Childhood & Youth Development professionals work with infants, toddlers, preschoolers, school-aged children/youth, and children with differing abilities in homes, schools, and community centers/agencies. Other career options include child advocacy and social service. Child Life Assistants may work in clinical and non-clinical settings with young children or youth who have special health needs.

Potential Job Titles
- Preschool Teacher
- Child Care Worker
- Family Day Care Provider
- Nanny
- School District Paraprofessional
- Child Life Assistant

Salary Data
Child Care
- Average Wage: $10.54/hour
- Top Earners: $14.14/hour

Preschool Teacher
- Average Wage: $15.68/hour
- Top Earners: $25.58/hour

Child Life Assistant
- Average Wage: $14.00/hour
- Top Earners: $20.00/hour

EARLY CHILDHOOD & YOUTH DEVELOPMENT – A.S. DEGREE

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

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ECYD1100	Introduction to Early Childhood Careers	3
ECYD1210	Child Growth and Development	3
ECYD1220	Health, Safety, and Nutrition	3
ECYD1230	Guiding Children's Behaviors	3
ECYD1240	Learning Environment and Curriculum	3
ENGL1150	Composition I	3
	Total Credits	**18**

First Year - Second Semester

ECYD1325	Observation and Assessment	3
ECYD1340	Curriculum Planning	3
ECYD2320	Children with Differing Abilities	3
SPEE1020	Interpersonal Communication	3
	General Education Elective (MnTC Goal 5)	3
	Total Credits	**15**

Second Year - First Semester

ECYD1510	Practicum I	3
	General Education (MnTC Goal 3)	3
	General Education (MnTC Goal 4)	3
	General Education Elective**	3
	Total Credits	**12**

Second Year - Second Semester

ECYD2600	Organizational Leadership and Management	3
	General Education Electives**	12
	Total Credits	**15**
	TOTAL PROGRAM REQUIREMENTS	**60**

** Select General Education electives from any MnTC goal area.

EARLY CHILDHOOD & YOUTH DEVELOPMENT – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ECYD1100	Introduction to Early Childhood Careers	3
ECYD1210	Child Growth and Development	3
ECYD1220	Health, Safety, and Nutrition	3
ECYD1230	Guiding Children's Behaviors	3
ECYD1240	Learning Environment and Curriculum	3
ENGL1150	Composition I	3
	Total Credits	**18**

First Year - Second Semester

ECYD1325	Observation and Assessment	3
ECYD1340	Curriculum Planning	3
ECYD2320	Children with Differing Abilities	3
	Technical Electives*	3
SPEE1020	Interpersonal Communications	3
	Total Credits	**15**

Second Year - First Semester

ECYD1510	Practicum I	3
ECYD2570	Working with Diverse Families and Children	3
	Technical Electives*	3
	General Education (MnTC Goal 3 or 4)	3
	Total Credits	**12**

Second Year - Second Semester

ECYD1310	Infant and Toddler Caregiving	2
ECYD1410	Infant and Toddler Field Experience	1
ECYD2510	Practicum II	3
ECYD2600	Organizational Leadership and Management	3
	General Education Elective**	6
	Total Credits	**15**
	TOTAL PROGRAM REQUIREMENTS	**60**

* Select Technical electives from the following subject areas: ECYD

** Select General Education electives from any MnTC goal area.

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CHILD LIFE ASSISTANT - A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ECYD1100	Introduction to Early Childhood Careers	3
ECYD1210	Child Growth and Development	3
ECYD1220	Health, Safety, and Nutrition	3
ECYD1230	Guiding Children's Behaviors	3
HEAL1502	Medical Terminology	2
	Total Credits	**14**

First Year - Second Semester

ECYD1240	Learning Environment and Curriculum	3
ECYD1325	Observation and Assessment	3
ECYD2320	Children with Differing Abilities	3
ECYD2715	Sign Language in Early Childhood	1
PSYC1300	Child/Adolescent Psychology	3
SPEE1020	Interpersonal Communication	3
	Total Credits	**16**

Second Year - First Semester

ECYD2501	Experiential Learning	1
ADTC1018	Basic Computer Applications	3
BIOL1310	Introduction to Anatomy and Physiology	4
ENGL1150	Composition I	3
PSYC1450	Death and Dying	2
SOCY1010	Marriage and Family	3
	Total Credits	**16**

Second Year - Second Semester

ECYD2600	Organizational Leadership & Management	3
ECYD2713	Culture, Family and Providers	1
ECYD2950	Field Experience	3
MATS	(1300, 1350 or 1251)	4
PHIL1350	Medical Ethics	3
	Total Credits	**14**
	TOTAL PROGRAM REQUIREMENTS	**60**

* Select Technical electives from the following subject areas: ECYD

EARLY CHILDHOOD & YOUTH DEVELOPMENT - CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ECYD1100	Introduction to Early Childhood Careers	3
ECYD1210	Child Growth and Development	3
ECYD1220	Health, Safety, and Nutrition	3
ECYD1230	Guiding Children's Behaviors	3
ECYD1240	Learning Environment and Curriculum	3
ECYD1310	Infant and Toddler Caregiving	2
	Total Credits	**17**

EARLY CHILDHOOD & YOUTH DEVELOPMENT - DIPLOMA*

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ECYD1100	Introduction to Early Childhood Careers	3
ECYD1210	Child Growth and Development	3
ECYD1220	Health, Safety, and Nutrition	3
ECYD1230	Guiding Children's Behaviors	3
ECYD1240	Learning Environment and Curriculum	3
ENGL1150	Composition I	3
	Total Credits	**18**

First Year - First Semester

ECYD1325	Observation and Assessment	3
ECYD1340	Curriculum Planning	3
ECYD1510	Practicum I	3
SPEE1020	Interpersonal Communication	3
	General Education Elective**	3
	Total Credits	**15**
	TOTAL PROGRAM REQUIREMENTS	**33**

** Select General Education electives from any MnTC goal area.

DAKOTA COUNTY
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2014-2015 CATALOG

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NATIONAL CDA
TRAINING PROGRAM - CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ECYD1100	Introduction to Early Childhood Careers	3
ECYD1210	Child Growth and Development	3
ECYD1220	Health, Safety, and Nutrition	3
ECYD1230	Guiding Children's Behaviors	3
	Total Credits	**12**
	TOTAL PROGRAM REQUIREMENTS	**12**

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EXERCISE & SPORT SCIENCE

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

Outcomes

Exercise & Sport Science A.S. Degree . . . . .60 cr.
Exercise & Sport Science A.A.S. Degree . . . . .60 cr.
Personal Training Certificate . . . . 16 cr.
Group Fitness Certificate . . . . 16 cr.
Geriatric Health & Fitness Certificate . . . . 16 cr.
Advanced Personal Training Certificate. . . . . 16 cr.

Major Description

Exercise & Sport Science A.S./A.A.S Degree: This program offers two different 60-credit degree outcomes: Associate in Science and Associate in Applied Science. Both programs include technical courses in Exercise and Sport Science and general education courses. The A.S. degree is intended to prepare students to transfer to a four-year college or university. The A.A.S. degree prepares students to go directly into the workforce.

Personal Training Certificate: This program provides the student with hands-on, practical experience in the area of personal training. The certificate consists of 16 credits of coursework. All of the courses are offered during fall semester. EXER2020 Personal Training and Exercise Leadership I is offered in partnership with the American Council on Exercise (ACE). Students will be prepared for the ACE Personal Training certification exam following successful completion of the course.

Group Fitness Certificate: This program contains 16 credits of coursework and provides students with the knowledge and skills to gain employment as a group fitness instructor. EXER 2250 Group Fitness Instruction is offered in partnership with the American Council on Exercise (ACE). Students will be prepared for the ACE Group Fitness Instructor certification exam following successful completion of the course.

Geriatric Health and Fitness Certificate: This 16 credit certificate program provides students with the knowledge and skills needed to work safely and effectively with an aging population. This field continues to grow and skilled workers are needed in increasing numbers.

Advanced Personal Training Certificate: This 16 credit certificate requires successful completion of the Personal Training Certificate or ACE Personal Training certification exam as a prerequisite. It includes courses that will expand on the knowledge and skills learned in the Personal Training Certificate; including, sales, working with athletes, and nutrition.

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: $16.36/hour
- Top Earners: $27.16/hour

Coach
- Average Wage: $36,970/year
- Top Earners: $66,189/year

Recreation Worker
- Average Wage: $13.24/hour
- Top Earners: $18.67/hour

EXERCISE & SPORT SCIENCE – A.S. DEGREE

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

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

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
PSYC1105	General Psychology	4
	Total Credits	**15**

Second Year - First Semester

	Technical Elective*	5
BIOL2000	Anatomy and Physiology I	4
ISTC1025	Computer Basics	1
SOCY1110	Introduction to Sociology (or SOCY1010)	3
	General Education Elective**	3
	Total Credits	**16**

Second Year - Second Semester

EXER2295	Social and Ethical Aspects of Sport	3
	Technical Elective*	4
BIOL2010	Anatomy and Physiology II	4
	General Education Elective**	3
	Total Credits	**14**
	TOTAL PROGRAM REQUIREMENTS	**60**

* Select Technical electives from the following subject areas: EXER

** Select General Education electives from two of the following MnTC goal areas: 4, 6, 8, 9 or 10.

EXERCISE & SPORT SCIENCE – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Aid/CPR certification is a requirement for graduation.

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
EXER1050	Nutrition for Health & Human Performance	3
ENGL1150	Composition I	3
PSYC1105	General Psychology	4
	Total Credits	**15**

Second Year - First Semester

EXER2020	Personal Training and Exercise Leadership I	2
EXER2090	Exercise for Special Populations	2
EXER2115	Applied Exercise Physiology	3
ISTC1025	Computer Basics	1
	Technical Elective*	3
BIOL2000	Anatomy & Physiology I	4
	Total Credits	**15**

Second Year - Second Semester

EXER2060	Personal Training and Exercise Leadership II	2
EXER2295	Social and Ethical Aspects of Sport	3
EXER2975	Practicum	3
	Technical Elective*	3
BIOL2010	Anatomy and Physiology II	4
	Total Credits	**15**
	TOTAL PROGRAM REQUIREMENTS	**60**

* Select Technical electives from the following subject areas: EXER

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PERSONAL TRAINING – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Aid/CPR certification is a requirement for graduation.

First Year - First Semester

EXER1020	Strength Training	2
EXER1065	Psychology of Sport and Performance	3
EXER2020	Personal Training and Exercise Leadership I	2
EXER2260	Recruiting and Retaining Clients	1
EXER2975	Practicum	1
BIOL1310	Introduction to Anatomy and Physiology (or HEAL1101 Anatomy and Physiology)	4
SPEE1020	Interpersonal Communication	3
	Total Credits	**16**
	TOTAL PROGRAM REQUIREMENTS	**16**

GERIATRIC HEALTH & FITNESS – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Aid/CPR certification is a requirement for graduation.

First Year - First Semester

EXER1020	Strength Training	2
EXER2020	Personal Training and Exercise Leadership I	2
EXER2090	Exercise for Special Populations	2
EXER2250	Group Fitness Instruction	2
EXER2260	Recruiting and Retaining Clients	1
EXER2280	Health and Aging	3
BIOL1310	Introduction to Anatomy and Physiology (or HEAL1101 Anatomy and Physiology)	4
	Total Credits	**16**
	TOTAL PROGRAM REQUIREMENTS	**16**

GROUP FITNESS – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Aid/CPR certification is a requirement for graduation.

First Year - First Semester

EXER1020	Strength Training	2
EXER1065	Psychology of Sport and Performance	3
EXER2020	Personal Training and Exercise Leadership I	2
EXER2250	Group Fitness Instruction	2
EXER2260	Recruiting and Retaining Clients	1
EXER2975	Practicum	2
BIOL1310	Introduction to Anatomy and Physiology (or HEAL1101 Anatomy and Physiology)	4
	Total Credits	**16**
	TOTAL PROGRAM REQUIREMENTS	**16**

ADVANCED PERSONAL TRAINING – CERTIFICATE

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

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

EXER 1025	Physical Conditioning	2
EXER 1050	Nutrition for Health and HP	3
EXER 2060	Personal Training II	2
EXER 2125	Applied Biomechanics & MA	3
EXER 2275	Sport Marketing	3
EXER 2975	Practicum	1
ENTR 1725	Sales Techniques I	2
	Total Credits	**16**
	TOTAL PROGRAM REQUIREMENTS	**16**

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HEALTH CARE TECHNICIAN

Delivery: Daytime Classes
Start: Fall or Spring Semester
Location: Rosemount Campus

Outcome
Health Care Technician A.A.S. Degree . . . . 60 cr.

Major Description
The Health Care Technician program offers opportunities to individuals interested in entering the health care field and to those currently employed in the field who wish to seek additional credentials to compliment their current skill set. Successful students will obtain three certifications and will have the opportunity to test for a fourth:

1. Certified Nursing Assistant (CNA)
2. Training Medicator Aid (TMA)
3. Certified EKG Tech (CET)
4. Phlebotomy Certification (optional)

Work Environment
Healthcare technicians provide care under the direct supervision of licensed nurses. Employment is primarily in hospitals, long-term care facilities, home health agencies.

Potential Job Titles
- EKG Technician
- Phlebotomist
- Trained Medication Aid

Salary Data
EKG Technician
- Average Wage: $27.33/hour
- Top Earners: $37.48/hour

EMT Technician
- Average Wage: $16.33/hour
- Top Earners: $23.39/hour

HEALTH CARE TECHNICIAN – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

HEAL1005	Role of the Patient Care Tech	2
HEAL1150	Math for Health Careers	1
BIOL1500	General Biology	4
ENGL1150	Composition I	3
PSYC1350	Lifespan Development	4
	Total Credits	**14**

First Year - Second Semester

HEAL1502	Medical Terminology	2
BIOL2000	Anatomy & Physiology I	4
NATM1500	Nursing Assistant/Trained Medication Aide	8
	(or EMRG1500 or HEAL1060 and HEAL1075)	
	Total Credits	**14**

First Year - Summer Session

BIOL2020	Microbiology	4
	Total Credits	**4**

Second Year - First Semester

BIOL2010	Anatomy & Physiology II	4
EKGT2000	EKG Telemetry Tech Course	6
SPEE1020	Interpersonal Communication	3
	Total Credits	**13**

Second Year - Second Semester

HEAL2500	Medical Office Skills for the Health Care Technician	3
HEAL2700	Health Care Technician—Capstone	3
PLBT2500	Phlebotomy	6
PHIL1350	Medical Ethics	3
	Total Credits	**15**

TOTAL PROGRAM REQUIREMENTS	**60**

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MEDICAL ASSISTANT

Delivery: Daytime and Online Classes
Start: Fall Semester (classroom) or Spring Semester
Hybrid, Full- or Part-time options available
Location: Rosemount Campus

Outcomes
Medical Assisting A.A.S. Degree . . . . .60 cr.
Medical Assisting Diploma . . . . .42 cr.

Major Description
Accredited by the Commission on Accreditation of Allied Health Education Programs, or CAAHEP (www.caahep.org; 1361 Park St. Clearwater, FL), on recommendation of the Medical Assisting Education Review Board (MAERB), 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. The program goal is to prepare competent entry-level medical assistants in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains.

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: $16.40/hour
- Top Earners: $21.47/hour

MEDICAL ASSISTANT – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

HEAL1101	Anatomy and Physiology	4
HEAL1502	Medical Terminology	2
MDAS1125	Laboratory Skills I	4
MDAS1131	Clinical Procedures I	3
MDAS1140	Phlebotomy	1
ADTC1130	MS Word I	2
	Total Credits	**16**

First Year - Second Semester

MDAS1211	Disease/Medical Treatment including Nutrition	4
MDAS1223	Laboratory Skills II	4
MDAS1231	Clinical Procedures II	3
MDAS1271	Administrative Procedures	3
MDAS1702	Pharmacology & Math for Medical Assistants	4
	Total Credits	**18**

First Year - Summer Session

MDAS1250	Fundamentals of Radiographic Imaging	2
MDAS2970	Practicum	6
	Total Credits	**8**

Second Year - First Semester

ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
	General Education Electives**	3
	Total Credits	**9**

Second Year - Second Semester

	General Education Elective (MnTC Goal 3 or 4)	3
	General Education Electives**	6
	Total Credits	**9**

	TOTAL PROGRAM REQUIREMENTS	**60**

*** Select General Education electives from any MnTC goal area.*

MEDICAL ASSISTANT – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

HEAL1101	Anatomy and Physiology	4
HEAL1502	Medical Terminology	2
MDAS1125	Laboratory Skills I	4
MDAS1131	Clinical Procedures I	3
MDAS1140	Phlebotomy	1
ADTC1130	MS Word I	2
	Total Credits	**16**

First Year - Second Semester

MDAS1211	Disease/Medical Treatment including Nutrition	4
MDAS1223	Laboratory Skills II	4
MDAS1231	Clinical Procedures II	3
MDAS1271	Administrative Procedures	3
MDAS1702	Pharmacology & Math for Medical Assistants	4
	Total Credits	**18**

First Year - Summer Session

MDAS1250	Fundamentals of Radiographic Imaging	2
MDAS2970	Practicum	6
	Total Credits	**8**
	TOTAL PROGRAM REQUIREMENTS	**42**

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NURSING ASSISTANT

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

Outcome

Nursing Assisting Certificate . . . . 5 cr.
Geriatric Advanced Nursing
Assistant – Certificate . . . . 16 cr.

Major Description

Nursing Assistant Certificate: 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 Minnesota State Certification examination is administered following course completion.

Geriatric Advanced Nursing Assistant Certificate: This program will provide the student with an enhanced understanding of the influence caregivers have in the quality and safety of healthcare for aging adults. The student will be able to identify common physical and psychosocial characteristics associated with the aging adult. The student will gain knowledge necessary to plan and provide optimal entry level care for aging adults.

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: $14.03/hour
- Top Earners: $18.09/hour

NURSING ASSISTANT – CERTIFICATE

First Year - First Semester

HEAL1060	Nursing Assistant	5
	Total Credits	**5**
	TOTAL PROGRAM REQUIREMENTS	**5**

GERIATRIC ADVANCED NURSING ASSISTANT – CERTIFICATE

First Year - First Semester

GERI1000	Memory Care in the Aging Adult	3
GERI1100	Physiological Changes in the Aging Adult	3
HEAL1502	Medical Terminology	2
NATM1500	Nursing Assistant and Trained Medication Aid	8
	Total Credits	**16**
	TOTAL PROGRAM REQUIREMENTS	**16**

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SPORT MANAGEMENT

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

Outcome
Sport Management Diploma . . . . 48 cr.

Major Description
This program offers training and development directly related to positions in a variety of sport and recreation occupations. Coursework in Exercise and Sport Science, business and communication prepare graduates for careers in sport, recreation, and related facilities management. A practical experience in the field provides the opportunity for students to actively engage in application of sport management principles.

Work Environment
Sport management graduates become valuable employees in community centers, sports arenas/fields/courts, youth sport organizations, fitness centers, camps, parks and cruise ships.

Potential Job Titles
- Coach
- Sport Instructor
- Officials
- Recreation Worker
- Recreation Supervisor
- Camp Counselor

Salary Data
Coach
- Average Wage: $36,970/year
- Top Earners: $66,189/year

Recreation Worker
- Average Wage: $13.24/hour
- Top Earners: $18.67/hour

SPORT MANAGEMENT - DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year – First Semester

EXER1000	Introduction to Human Performance Studies	3
EXER1065	Psychology of Sport and Performance	3
ACCT1000	Principles of Accounting I	4
ISTC1025	Computer Basics	1
SPEE1020	Interpersonal Communications	3
	General Education Elective **	3
	Total Credits	**17**

First Year – Second Semester

EXER1045	Organization and Management of Sport	3
EXER2285	Sport Facilities Management	3
EXER2295	Social and Ethical Aspects of Sport	3
	Technical Elective*	2
PSYC1105	General Psychology	4
ENGL1150	Composition I	3
	Total Credits	**18**

Second Year – First Semester

EXER2275	Sport Marketing	3
EXER2290	Legal Aspects of Sport	3
EXER2975	Practicum	1
SOCY1010	Marriage and Family (or SOCY1110)	3
	General Education Elective**	3
	Total Credits	**13**
	Total Program Requirements	**48**

* Select Technical electives from the following subject areas: EXER

** Select General Education electives from two of the following MnTC goal areas: 2, 3, 4, 6, 8, 9 or 10.

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INDUSTRY CAREERS

PROGRAMS OF STUDY

Biomedical Equipment Technology
Civil Engineering Technology
Electrical Construction & Maintenance
Electrical Lineworker
Energy Technical Specialist
Industrial & Energy Plant Maintenance
Nanoscience Technology
Welding Technology

POWER UP

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 iseek.org.

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BIOMEDICAL EQUIPMENT TECHNOLOGY

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

Outcomes

Biomedical Equipment Technology A.A.S. Degree . . . . . 70 cr.
Biomedical Equipment Technology Certificate . . . . 26 cr.

Major Description

Students are trained to work in the Healthcare Technology Management field 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 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: $26.98/hour
- Top Earners: $36.39 /hour

BIOMEDICAL EQUIPMENT TECHNOLOGY – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

BMET1112	DC Electricity	3
BMET1123	AC Electricity	3
BMET1140	Solid State Electronics	4
HEAL1502	Medical Terminology	2
ISTC1010	Microcomputer Maintenance	3
MATS1300	College Algebra	4
	Total Credits	**19**

First Year - Second Semester

BMET1220	Medical Device Technology	4
BMET1530	Digital and Microprocessor	3
ISTC1045	Network Systems I: Introduction to Networking	3
CHEM1500	Introduction to Chemistry	4
ENGL1150	Composition I	3
	Total Credits	**17**

First Year - Summer Session

BMET2940	BMET Field Experience	1

Second Year - First Semester

BMET1122	Administrative Functions	4
BMET2110	Professional Skills	2
ISTC2006	Network Systems II: Routing and Switching Essentials	3
BIOL1310	Introduction to Anatomy and Physiology	4
PHYS1050	Introduction to Physics	3
	Total Credits	**16**

Second Year - Second Semester

BMET2210	Instrumentation I	4
BMET1114	Wireless Communication	1
BMET1231	Instrumentation II	4
ISTC2011	Network Systems III: Scaling Networks	3
SPEE1020	Interpersonal Communication	3
	Total Credits	**15**

Second Year - Summer Session

BMET2970	Internship	2

TOTAL PROGRAM REQUIREMENTS	**70**

** Select General Education electives from any MnTC goal area.

BIOMEDICAL EQUIPMENT TECHNOLOGY – CERTIFICATE

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

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

BMET1122	Administrative Functions	4
BMET2110	Professional Skills	2
HEAL1502	Medical Terminology	2
BIOL1310	Introduction to Anatomy and Physiology	4
	Total Credits	**12**

First Year - Second Semester

BMET1220	Medical Device Technology	4
BMET2210	Instrumentation I	4
BMET1114	Wireless Communication	1
BMET1231	Instrumentation II	4
	Total Credits	**13**

Summer Session

BMET2970	Internship	2
	TOTAL PROGRAM REQUIREMENTS	**27**

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CIVIL ENGINEERING TECHNOLOGY

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

Outcome
Civil Engineering Technology A.A.S. Degree. . . . . 72 cr.

Major Description
This program incorporates state-of-the-art equipment and software programs in its labs. 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 project 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
- Average Wage: $27.88/hour
- Top Earners: $35.66/hour

CIVIL ENGINEERING TECHNOLOGY – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

CIVL1121	Basic CAD	4
CIVL1130	Beginning Surveying	3
CIVL1141	Civil Engineering Technology and Government	1
CIVL1150	Introduction to GIS	3
CIVL1161	Project Management	3
	General Education Elective**	3
	Total Credits	**17**

First Year - Second Semester

CIVL1221	Civil Engineering Technology Drafting	5
CIVL1231	Intermediate Surveying & GPS	5
CIVL1241	Construction Staking	2
CIVL1250	Soil Mechanics Survey	3
SPEE1020	Interpersonal Communication	3
	Total Credits	**18**

Second Year - First Semester

CIVL2120	Construction Inspection	3
CIVL2141	Hydrology and Storm Water Management	3
CIVL2150	Eco-Sensitive Design	3
CIVL2131	Land Survey	2
CIVL2160	Materials Testing	3
CIVL2970	Internship	3
MATS1300	College Algebra	4
	Total Credits	**21**

Second Year - Second Semester

CIVL2210	Project Design: Utilities Design, Road Design, Grading	5
CIVL2220	Properties of Construction Materials	3
CIVL2240	Estimating	3
ENGL1150	Composition I	3
MATS1320	College Trigonometry	2
	Total Credits	**16**
	TOTAL PROGRAM CREDITS	**72**

*** Select General Education electives from any MnTC goal area.*

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ELECTRICAL CONSTRUCTION & MAINTENANCE TECHNOLOGY

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

Outcomes

Electrical Construction & Maintenance A.A.S. Degree . . 81 cr.
Electrical Construction & Maintenance Diploma . . . . 75 cr.

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, technology system contractors, registered employers who only perform electrical work in facilities they own or lease 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: $28.57/hour
- Top Earners: $37.13/hour

ELECTRICAL CONSTRUCTION & MAINTENANCE TECHNOLOGY – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ELEC1110	D. C. Electricity Theory and Lab	3
ELEC1120	A. C. Electricity Theory and Lab	3
ELEC1130	National Electrical Code I	3
ELEC1138	Computer Applications for Electricians	2
ELEC1137	Construction Site Safety	1
ELEC1140	Blueprint Reading for Technicians	3
MATS1205	Math for Electricians	3
	Total Credits	**18**

First Year - Second Semester

ELEC1210	Analog/ Digital Electronics Theory	2
ELEC1220	Analog/ Digital Electronics Lab	4
ELEC1230	Construction Skills & Intro to Wiring Theory	3
ELEC1240	Construction Skills & Intro to Wiring Lab	6
SPEE1020	Interpersonal Communication	3
	Total Credits	**18**

First Year - Summer Session

ENGL1150	Composition I	3
	General Education (MnTC Goal 3 or 4)	3
	Total Credits	**6**

Second Year - First Semester

ELEC2110	Electrical Apparatus Theory	3
ELEC2120	Electrical Apparatus Lab	6
ELEC2131	Programmable Logic Controllers Theory	2
ELEC2141	Programmable Logic Controllers Lab	4
	General Education Elective**	3
	Total Credits	**18**

Second Year - Second Semester

ELEC2210	National Electrical Code II	3
ELEC2220	Electrical/Electronic Controls & Systems Theory	2
ELEC2230	Electrical/Electronic Controls & Systems Lab	4
ELEC2241	Industrial & Maintenance Wiring Theory/Lab	3
ELEC2251	Commercial Wiring Theory and Lab	3
ELEC2260	Heating, Ventilation, and Air Conditioning Wiring Theory and Lab	3
	Total Credits	**18**

Second Year - Summer Session

	General Education Elective**	3
	Total Credits	**3**

TOTAL PROGRAM REQUIREMENTS	**81**

*** Select General Education electives from any MnTC goal area.*

ELECTRICAL CONSTRUCTION &
MAINTENANCE TECHNOLOGY – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ELEC1110	D. C. Electricity Theory and Lab	3
ELEC1120	A. C. Electricity Theory and Lab	3
ELEC1130	National Electrical Code I	3
ELEC1137	Construction Site Safety	1
ELEC1138	Computer Applications for Electricians	2
ELEC1140	Blueprint Reading for Technicians	3
MATS1205	Math for Electricians	3
	Total Credits	**18**

First Year - Second Semester

ELEC1210	Analog/Digital Electronics Theory	2
ELEC1220	Analog/Digital Electronics Lab	4
ELEC1230	Construction Skills & Intro to Wiring Theory	3
ELEC1240	Construction Skills & Intro to Wiring Lab	6
SPEE1020	Interpersonal Communications	3
	Total Credits	**18**

First Year - Summer Session

	General Education Elective**	3
	Total Credits	**3**

Second Year - First Semester

ELEC2110	Electrical Apparatus Theory	3
ELEC2120	Electrical Apparatus Lab	6
ELEC2131	Programmable Logic Controllers Theory	2
ELEC2141	Programmable Logic Controllers Lab	4
ENGL1150	Composition I (or ENGL1000)	3
	Total Credits	**18**

Second Year - Second Semester

ELEC2210	National Electrical Code II	3
ELEC2220	Electrical/Electronic Controls & Systems Theory	2
ELEC2230	Electrical/Electronic Controls & Systems Lab	4
ELEC2241	Industrial & Maintenance Wiring Theory/Lab	3
ELEC2251	Commercial Wiring Theory and Lab	3
ELEC2260	Heating, Ventilation, and Air Conditioning Wiring Theory and Lab	3
	Total Credits	**18**
	TOTAL PROGRAM REQUIREMENTS	**75**

** Select General Education electives from any MnTC goal area.

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TECHNICAL COLLEGE

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ELECTRICAL LINEWORKER

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

Outcomes

Electrical Lineworker A.A.S. Degree . . . . 60 cr.
Electrical Lineworker Diploma . . . . 43 cr.

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 lineworkers 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 Lineworker
- Line Crewman
- Electric Power Line Installer
- Line Erector
- Line Installer-Repairer
- Power Lineworker

Salary Data

- Average Wage: $31.64/hour
- Top Earners: $42.09/hour

ELECTRICAL LINEWORKER – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

July Start

ELLW1110	Distribution I	4
ELLW1120	Utility Equipment and Tools	2
	Total Credits	**6**

First Year - First Semester

ELLW1130	Basic Electricity	2
ELLW1140	Distribution IIA	4
ELLW1141	Distribution IIB	4
ELLW1150	Construction Planning and Practices	2
ELLW1160	Transformers I	4
	General Education Elective**	3
	Total Credits	**19**

First Year - Second 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**

Additional Requirements

SPEE1020	Interpersonal Communication	3
ENGL1150	Composition I	3
	General Education (MnTC Goal 3 or 4)	3
	General Education Electives**	8
	Total Credits	**17**
	TOTAL PROGRAM REQUIREMENTS	**60**

*** Select General Education electives from any MnTC goal area.*

ELECTRICAL LINEWORKER – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

July Start

ELLW1110	Distribution I	4
ELLW1120	Utility Equipment and Tools	2
	Total Credits	**6**

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
	General Education Electives**	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**
	TOTAL PROGRAM REQUIREMENTS	**43**

*** Select General Education electives: SPEE1020, ENGL1150, or ENGL1000.*

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2014-2015 CATALOG

ENERGY TECHNICAL SPECIALIST

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

Outcomes
Energy Technical Specialist—Nuclear A.A.S. Degree. . . . 75 cr.
Energy Technical Specialist A.A.S. Degree . . . . .60 cr.

Major Description
The Energy Technical Specialist A.A.S. Degree is a new degree that has been developed using funding from a U. S. Department of Labor High Growth Job Training initiative Grant. The goal of the degree is to train students in the field of energy technology. Due to the increasing age of the current energy workforce and the growth of the renewable energy industry, it is estimated that there will be a great demand for skilled workers in the energy industry. The energy Technical Specialist, A. A. S. degree will convey the skills and knowledge necessary to be successful in both traditional and renewable energy fields. The degree will prepare students for work (primarily as technicians) in the following industries: coal-fired electric power generation, natural gas distribution, ethanol production, biodiesel production, wind turbine maintenance or solar energy.

DCTC offers additional training as nuclear energy maintenance technicians that meets the Nuclear Energy Institute (NEI) standards. It is the goal to have the graduates of the Energy Technical Specialist A. A. S. degree and the nuclear energy advanced training to meet the Nuclear Energy Institutes (NEI) standards. These graduates will have the skills and knowledge necessary to obtain entry-level employment in the nuclear energy industry. This program will utilize the Uniform Curriculum Guide, which was developed as part of an industry-wide workforce strategy to standardize curriculum and increase efficiency of new and qualified nuclear workers focused on maintenance and non-licensed operators.

Work Environment
Energy maintenance technicians work in energy generation plants. It depends on the areas of focus, these technicians work in traditional fossil fuel (coal-fired) plants, nuclear power generation plants, or other energy specializations. The Minnesota energy companies support and are involved with this program through the Minnesota Energy Consortium.

Students entering into the Energy Technical Specialist program should realize that the energy industry is a highly specialized industry and there are extraordinary employment characteristic associated with the power industry. Depending on the energy company, the hiring managers may require a federal background check, psychological testing, drug and alcohol testing, fingerprinting for FBI criminal investigation, and a physical if necessary for a position. The industry is solely responsible for facilitating the employment prerequisites.

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

Salary Data
- Average Wage (U.S.): $28.11/hour
- Top Earners (U.S.): $36.56/hour

ENERGY TECHNICAL SPECIALIST - NUCLEAR – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

Code	Course	Credits
ETSA1515	Intro to Industrial Safety and Health	2
RNEW1300	Intro to Trade/Renewable Energy (ONLINE at Hibbing Community College)	3
ETSA1511	Fundamentals of AC/DC Electricity I	3
ETSA1512	Fundamentals of AC/DC Electricity II	3
MATS1300	College Algebra	4
	Total Credits	**15**

First Year - Second Semester

Code	Course	Credits
ETSA1507	Digital Electronics	3
ETSA1523	Print Reading	3
ETSA1541	Mechanical Fundamentals	3
ETSA1552	Metal Joining and Fabrication	2
ENGL1150	Composition I	3
PHYS1050	Introduction to Physics	3
	Total Credits	**17**

Summer Session

Code	Course	Credits
NUCP2500	Nuclear Energy Fundamentals	3
	Total Credits	**3**

Second Year - First Semester

Code	Course	Credits
ETSA1531	Process Controls/Instrumentation I	3
ETSA2516	Mechanical Systems II	4
ETSA2512	Hydraulics	3
ETSA2513	Pneumatics	3
NUCP2504	Nuclear Plant Materials	4
BIOL1110	Environmental Science	3
	Total Credits	**20**

Second Year - Second Semester

Code	Course	Credits
ETSA2543	PLC Fundamentals	3
ETSA2546	Powerplant Technology	4
ETSA2547	Mechanical Fundamentals for Process Controls	3
NUCP2508	Nuclear Plant Operating Systems	4
NUCP2512	Nuclear Plant In-Processing	1
SPEE1020	Interpersonal Communications	3
	Total Credits	**18**

Summer Session

Code	Course	Credits
NUCP2516	Nuclear Plant Electrical Job Shadow	1
NUCP2520	Nuclear Plant Mechanical Job Shadow	1
	Total Credits	**2**

| | **TOTAL PROGRAM REQUIREMENTS** | **75** |

ENERGY TECHNICAL SPECIALIST – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

Code	Course	Credits
ETSA1515	Intro to Industrial Safety and Health	2
RNEW1300	Intro to Trade/Renewable Energy (ONLINE at Hibbing Community College)	3
ETSA1511	Fundamentals of AC/DC Electricity I	3
ETSA1512	Fundamentals of AC/DC Electricity II	3
	College Algebra	3
	Total Credits	**14**

First Year - Second Semester

Code	Course	Credits
ETSA1507	Digital Electronics	3
ETSA1523	Print Reading	3
ETSA1552	Metal Joining and Fabrication (Fossil Fuel Emphasis)	2
ETSA1541	Mechanical Fundamentals	3
PHYS1050	Introduction to Physics	3
	Total Credits	**16**

Second Year - First Semester

Code	Course	Credits
ETSA2516	Mechanical Systems II (Fossil Fuel Emphasis)	4
ETSA1531	Process Controls/Instrumentation I	3
ETSA2512	Hydraulics	3
ETSA2513	Pneumatics	3
BIOL1110	Environmental Science	3
	Total Credits	**14**

Second Year - Second Semester

Code	Course	Credits
ETSA2543	PLC Fundamentals	3
ETSA2546	Powerplant Technology (Fossil Fuel Emphasis)	4
ETSA2547	Mechanical Fundamentals for Process Controls	3
ENGL1150	Composition I	3
SPEE1020	Interpersonal Communications	3
	Total Credits	**16**

| | **TOTAL PROGRAM REQUIREMENTS** | **60** |

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INDUSTRIAL & ENERGY PLANT MAINTENANCE

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

Outcome
Industrial and Energy Plant Maintenance Diploma . . . . . 45 cr.

Major Description
With training in the Industrial and Energy Plant Maintenance program you will obtain the necessary skills to maintain manufacturing, industry, and energy plants. Modern manufacturing, industry and energy plants are highly complicated and require a skilled worker to maintain them.

This program prepares students with a foundation in the theory, application and principles of these complicated environments. This includes the proper installation, maintenance and troubleshooting of mechanical, electrical, electronic, electromechanical, hydraulic and pneumatic power equipment. Our programs also focus on bearings and seals, print reading, preventative/predictive maintenance, safety, welding, laser alignment, and vibration analysis.

The Industrial and Energy Plant Maintenance program is an ideal choice for students with good mechanical aptitude who take pride in their work.

INDUSTRIAL AND ENERGY PLANT MAINTENANCE – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ETSA1515	Intro to Industrial Safety and Health	2
ETSA1511	Fundamentals of AC/DC Electricity I	3
ETSA1512	Fundamentals of AC/DC Electricity II	3
RNEW1300	Intro to Trade/Renewable Energy	3
	Total Credits	**11**

First Year - Second Semester

ETSA1507	Digital Electronics	3
ETSA1523	Print Reading	3
ETSA1552	Metal Joining and Fabrication	2
ETSA1541	Mechanical Fundamentals	3
	Total Credits	**11**

Second Year - First Semester

ETSA2516	Mechanical Systems II	4
ETSA1531	Process Controls/Instrumentation I	3
ETSA2512	Hydraulics	3
ETSA2513	Pneumatics	3
	Total Credits	**13**

Second Year - Second Semester

ETSA2543 PLC Fundamentals		3
ETSA2546 Powerplant Technology		4
ETSA2547 Mechanical Fundamentals for Process Controls		3
Total Credits		**10**

TOTAL PROGRAM REQUIREMENTS	**45**

* Pending MnSCU approval

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2014-2015 CATALOG

NANOSCIENCE TECHNOLOGY

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

Outcome

Nanoscience Technology A.A.S. Degree . . . . 72 cr.

Major Description

This program prepares students for careers in nanobiotech, nanomaterials and nanoelectronics industries. The program also provides a strong foundation applicable to environmental, energy and agricultural industries. The curriculum is a combination of classroom and laboratory experiences, with hands on use of nanoscale equipment in all 4 semesters. Students have several opportunities for individual research and exploration of nanoscale concepts. Offered in partnership with the University of Minnesota, the program provides skills and knowledge required for employment in a large number of companies. The DCTC program also provides a starting point to four year degrees at multiple institutions in many degree programs. Processes of scientific inquiry, experiment and research design, critical thinking, and communication are aspects that are woven into each course.

Work Environment

Nanoscience technologists work in multiple business environments including research, production, testing, training and marketing. Often this role is a bridge between scientists, engineers and other technicians. Program graduates may work independently in some aspects but most often are part of a team. Your job will include some desk work but most of your time will be spent in a laboratory environment preparing test samples, microscope operation and testing, documentation and analysis and communication of your results. These technologists do not usually do the same thing for many months at a time. Finally, although nanoelectronics related jobs may occur in a clean room, most of these jobs are in traditional company research environments and labs. The options and work environments are varied and expanding with the United States nanotech market expected to $1 trillion by 2015.

Potential Job Titles

- Chemical Technician
- Lab Technician
- Manufacturing Technician
- Nanobiotech Research Assistant
- Nanomaterials Research Associate
- Nanoscale Fabrication Technician
- Nanotechnologist
- Quality Control Technician
- Research Assistant

Salary Data

- Average Wage (U.S.): $21.29/hour
- Top Earners (U.S.): $29.10/hour

NANOSCIENCE TECHNOLOGY – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

NANO1100	Fundamentals of Nanoscience I	3
PHYS1100	College Physics I	4
BIOL1500	General Biology	4
SPEE1020	Interpersonal Communication	3
MATS1300	College Algebra	4
	Total Credits	**18**

First Year - Second Semester

NANO1110	Student Research Lab	3
NANO1200	Fundamentals of Nanoscience II	3
NANO1210	Computer Simulation	1
CHEM1500	Introduction to Chemistry	4
MATS1251	Statistics	4
PHYS1200	College Physics II	4
	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

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**

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WELDING TECHNOLOGY

Delivery: Daytime and Afternoon/Evening Classes
Start: Fall Semester, Full-Time
Location: Rosemount Campus

Outcome
Welding Diploma . . . . 36 cr.

Major Description
The Welding Program offers a variety of training in different welding processes specific to our trade. Students will gain knowledge through theory in class and hands on experience in the welding lab. The major topics and welding processes will be covered in this nine-month course to ready the student for entry level positions in the industry. Subjects that are covered include: Shielded Metal Arc, Gas Metal Arc, Flux Cored Arc, Gas Tungsten Arc Welding Processes Oxy/Fuel, Plasma Arc, Carbon Air Arc Cutting and Gouging Processes. Students will work with a variety of metals which include: Steel, Stainless Steel, and Aluminum. Shop Fabrication, Blueprint Reading, Math, Visual Inspection, Safety are covered in the curriculum.

Work Environment
Welders with the ability to fabricate and weld metal products from blueprints are needed in great demand in a wide range of industries. Working careers in industry consist of three major areas: Manufacturing, Construction, and Repair.

Potential Job Titles
- Welder
- Welding Assembly Technician
- Machine Operator
- Spot Welder
- Braze Operator
- Fitter-Welder
- Robot Operator
- Fabricator
- Finishing Technician

Salary Data
- Average Wage: $19.17/hour
- Top Earners: $25.94/hour

WELDING TECHNOLOGY – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

WELD1101	Welding Safety and Theory I	3
WELD1111	Shielded Metal Arc Welding I	3
WELD1120	Gas Metal Arc Welding I	2
WELD1130	Flux Cored Arc Welding I	2
WELD1140	Gas Tungsten Arc Welding I	3
WELD1150	Print Reading I	3
MATS1000	Math for Welders	3
	Total Credits	**19**

First Year - Second Semester

WELD1200	Print Reading II	3
WELD1210	Welding Safety and Theory II	3
WELD1230	Shielded Metal Arc Welding II	3
WELD1240	Gas Metal Arc Welding II	2
WELD1250	Flux Cored Arc Welding II	2
WELD1260	Gas Tungsten Arc Welding II	3
INTS1010	Job Search Skills	1
	Total Credits	**17**
	TOTAL PROGRAM REQUIREMENTS	**36**

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TRANSPORTATION
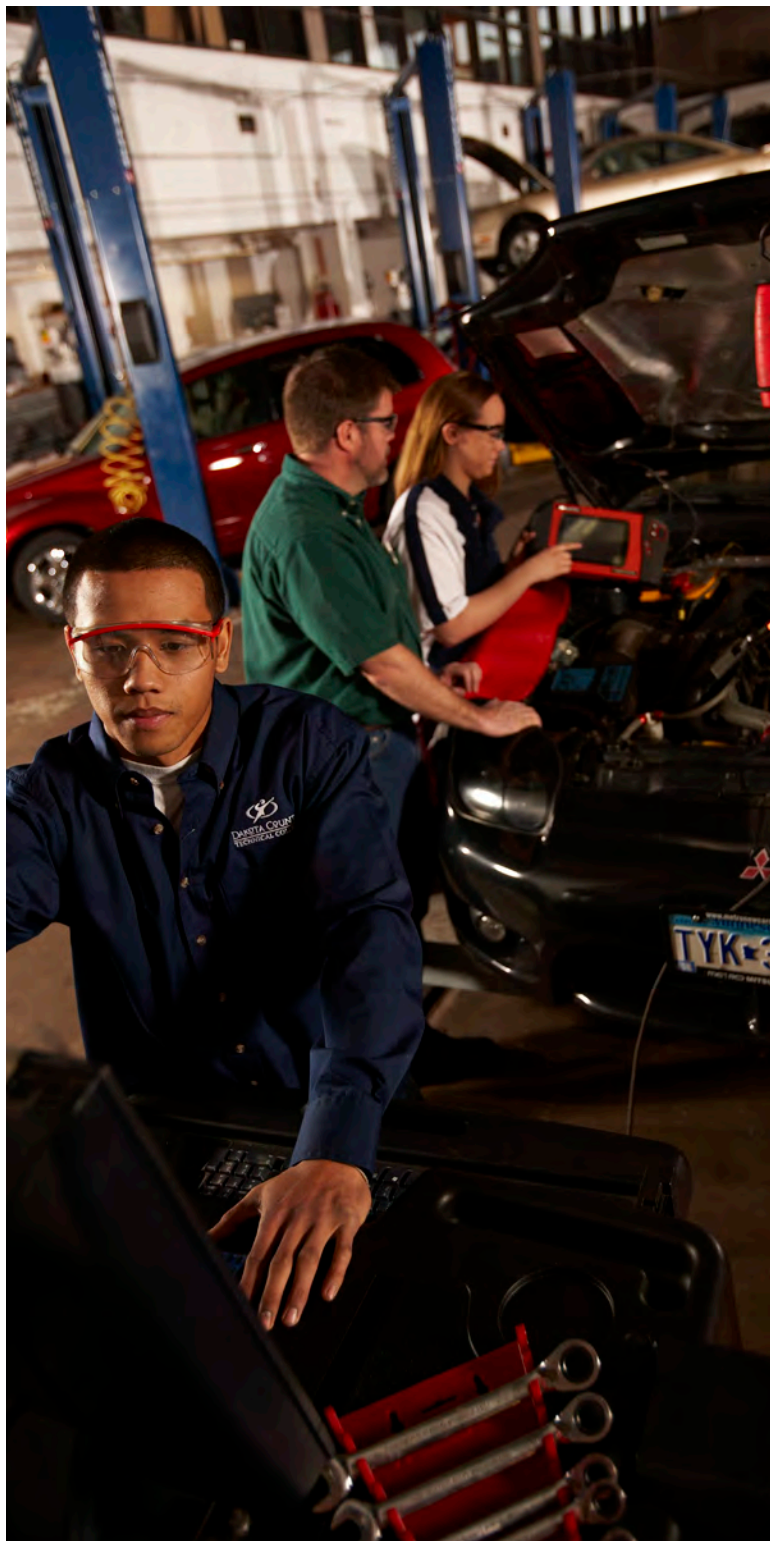
PROGRAMS OF STUDY

Auto Body Collision Technology
Automotive Technician
GM Automotive Service Educational Program
Heavy Construction Equipment Technology
Heavy Duty Truck Technology
Railroad Conductor Technology

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 iseek.org.

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AUTO BODY COLLISION TECHNOLOGY

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

Outcomes

Auto Body Collision Technology A.A.S. Degree . . . . 72 cr.
Auto Body Collision Technology Diploma . . . . 64 cr.
Body Technician Certificate . . . . 28 cr.
Paint Prep Certificate . . . . 21 cr.
Estimator Certificate . . . . 14 cr.

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: $23.54/hour
- Top Earners: $35.90/hour

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

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

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
ENGL1150	Composition I	3
	General Education (MnTC Goal 3 or 4)	3
	Total Credits	**18**

Second Year - First Semester

ABCT2102	Shop Management and Estimating	2
ABCT2106	Collision Damage Repair/Replacement	6
ABCT2108	Unibody/Frame/Wheel Alignment I	4
ABCT2230	Body Mechanical and Air Conditioning	3
	General Education Elective**	3
	Total Credits	**18**

Second Year - Second Semester

ABCT2100	Body Electrical	2
ABCT2212	Unibody/Frame/Wheel Alignment II	6
ABCT2240	Emerging Technologies	2
ABCT2970	Autobody Internship	5
	General Education Elective**	3
	Total Credits	**18**

TOTAL PROGRAM REQUIREMENTS	**72**

** Select General Education electives from any MnTC goal area.

AUTO BODY COLLISION TECHNOLOGY – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

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
ENGL1150	Composition I	3
	Total Credits	**15**

Second Year - First Semester

ABCT2102	Shop Management and Estimating	2
ABCT2106	Collision Damage Repair/Replacement	6
ABCT2108	Unibody/Frame/Wheel Alignment I	4
ABCT2230	Body Mechanical and Air Conditioning	3
	General Education Elective**	3
	Total Credits	**18**

Second Year - Second Semester

ABCT2100	Body Electrical	2
ABCT2212	Unibody/Frame/Wheel Alignment II	6
ABCT2970	Autobody Internship	5
	Total Credits	**13**
	TOTAL PROGRAM REQUIREMENTS	**64**

** *Select General Education electives from any MnTC goal area.*

BODY TECHNICIAN – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

ABCT1111	Collision Repair Welding I	2
ABCT1120	Sheet Metal Repair	5
ABCT1142	Glass, Trim and Hardware	4
ABCT1212	Collision Repair Welding II	2
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	**28**
	TOTAL PROGRAM REQUIREMENTS	**28**

PAINT PREPARATION – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

ABCT1130	Refinishing Preparation I	2
ABCT1142	Glass, Trim and Hardware	4
ABCT1150	Reconditioning and Detailing	2
ABCT1214	Refinishing Preparation II	3
ABCT1216	Refinishing Application	5
ABCT1230	Auto Body Plastic Repair	2
	General Education (SPEE1020 or ENGL1150)	3
	Total Credits	**21**
	TOTAL PROGRAM REQUIREMENTS	**21**

ESTIMATOR – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

ABCT1120	Sheet Metal Repair	5
ABCT2102	Shop Management and Estimating	2
ABCT2108	Unibody/Frame/Wheel Alignment I	4
	General Education (SPEE1020 or ENGL1150)	3
	Total Credits	**14**
	TOTAL PROGRAM REQUIREMENTS	**14**

DAKOTA COUNTY
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2014-2015 CATALOG

AUTOMOTIVE TECHNICIAN

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

Outcomes

Automotive Technician A.A.S. Degree . . . . 72 cr.
Automotive Technician Diploma . . . . 66 cr.
Driveability Certificate. . . . . 18 cr.
Engines & Transmission Certificate. . . . . 18 cr.
Electrical, Electronics, and HVAC Certificate . . . . 18 cr.
Brakes, Suspension and Driveline Certificate . . . . 18 cr.

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

- Automotive Technician
- Automobile Service Advisor
- Automotive Repair Technician
- Automotive Engineer

Salary Data

- Average Wage: $20.35/hour
- Top Earners: $29.37/hour

AUTOMOTIVE TECHNICIAN – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

AUTM2100	Basic Electricity	1
AUTM2110	Automotive Engine Electrical Systems	3
AUTM2115	Automotive Body Electrical Systems	3
AUTM2136	Heating, Ventilation and Air Conditioning	3
AUTM2141	Advanced Automotive Electronic Systems	5
SPEE1020	Interpersonal Communication	3
	Total Credits	**18**

First Year - Second Semester

AUTM2125	Engine Theory and Operation	4
AUTM2215	Automatic Transmission/Transaxle Theory and Operation	4
AUTM2225	Advanced Engine and Transmission Diagnosis and Repair	6
ENGL1150	Composition I	3
	Total Credits	**17**

Second Year - First Semester

AUTM2315	Ignition System Operation, Diagnosis and Repair	3
AUTM2322	Fuel System Operation Diagnosis and Repair	3
AUTM2325	Computer Systems Op. Diagnosis and Repair	3
AUTM2330	Advanced Driveability	5
	General Education (MnTC Goal 3 or 4)	3
	General Education Elective**	3
	Total Credits	**20**

Second Year - Second Semester

AUTM2011	Suspensions, Steering and Alignment Systems	3
AUTM2025	Brakes	3
AUTM2032	Manual Transaxle, Clutches, Transfer Cases and Differentials	3
AUTM2205	Advanced Driveline and Chassis Systems	5
	General Education Elective**	3
	Total Credits	**17**

TOTAL PROGRAM REQUIREMENTS	**72**

** Select General Education electives from any MnTC goal area.

AUTOMOTIVE TECHNICIAN – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

AUTM2100	Basic Electricity	1
AUTM2110	Automotive Engine Electrical Systems	3
AUTM2115	Automotive Body Electrical Systems	3
AUTM2136	Heating, Ventilation and Air Conditioning	3
AUTM2141	Advanced Automotive Electronic Systems	5
SPEE1020	Interpersonal Communication	3
	Total Credits	**18**

First Year - Second Semester

AUTM2125	Engine Theory and Operation	4
AUTM2215	Automatic Transmission/Transaxle Theory and Operation	4
AUTM2225	Advanced Engine and Transmission Diagnosis and Repair	6
ENGL1150	Composition I	3
	Total Credits	**17**

Second Year - First Semester

AUTM2315	Ignition System Operation, Diagnosis and Repair	3
AUTM2322	Fuel 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**

Second Year - Second Semester

AUTM2011	Suspensions, Steering and Alignment Systems	3
AUTM2025	Brakes	3
AUTM2032	Manual Transaxle, Clutches, Transfer Cases and Differentials	3
AUTM2205	Advanced Driveline and Chassis Systems	5
	Total Credits	**14**
	TOTAL PROGRAM REQUIREMENTS	**66**

*** Select General Education electives from any MnTC goal area.*

DRIVEABILITY – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

AUTM2100	Basic Electricity	1
AUTM2322	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	**18**
	TOTAL PROGRAM REQUIREMENTS	**18**

*** Select General Education electives from any MnTC goal area.*

ENGINES & TRANSMISSION – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

AUTM2100	Basic Electricity	1
AUTM2125	Engine Theory and Operation	4
AUTM2215	Automatic Transmission/Transaxle Theory and Operation	4
AUTM2225	Advanced Engine and Transmission Diagnosis and Repair	6
	General Education Elective**	3
	Total Credits	**18**
	TOTAL PROGRAM REQUIREMENTS	**18**

*** Select General Education electives from any MnTC goal area.*

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ELECTRICAL, ELECTRONICS, & HVAC – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

AUTM2100	Basic Electricity	1
AUTM2110	Automotive Engine Electrical Systems	3
AUTM2115	Automotive Body Electrical Systems	3
AUTM2136	Heating, Ventilation, and Air Conditioning	3
AUTM2141	Advanced Automotive Electronic Systems	5
	General Education Elective**	3
	Total Credits	**18**
	TOTAL PROGRAM REQUIREMENTS	**18**

** Select General Education electives from any MnTC goal area.

BRAKES, SUSPENSION AND DRIVELINE – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

AUTM2100	Basic Electricity	1
AUTM2011	Suspension, Steering & Alignment	3
AUTM2025	Brakes	3
AUTM2032	Manual Transmission and Driveline	3
AUTM2205	Advanced Driveline and Chassis System	5
	General Education Elective**	3
	Total Credits	**18**
	TOTAL PROGRAM REQUIREMENTS	**18**

** Select General Education electives from any MnTC goal area.

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GM AUTOMOTIVE SERVICE EDUCATIONAL PROGRAM (ASEP)

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

Outcome
Automotive Service A.A.S. Degree . . . . 82 cr.

Major Description
Though DCTC's unique cooperation with General Motors and AC Delco, ASEP trains highly specialized service technicians for GM dealers and AC Delco 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 project line, ASEP technicians are prepared to keep pace with future technology.

Work Environment
ASEP graduates work as service technicians in General Motors dealerships, including Buick, Cadillac, Chevrolet, GMC or an AC Delco Professional Service Center.

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

Salary Data
- Average Wage: $20.35/hour
- Top Earners: $29.37/hour

AUTOMOTIVE SERVICE – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

ASEP1101	Automotive Fundamentals	3
ASEP1102	Electrical and Fuel Systems	3
ASEP1201	Dealer Work Experience I	8
BIOL1110	Environmental Science	3
	Total Credits	**17**

First Year - Second Semester

ASEP1103	Driveability	3
ASEP1105	Heating and Air Conditioning	3
ASEP1202	Dealer Work Experience II	8
SPEE1020	Interpersonal Communication	3
	Total Credits	**17**

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

ASEP1204	Dealer Work Experience IV	8
ASEP2111	Engines	3
ASEP2209	Driveline and Four-Wheel Drive	3
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	**82**

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HEAVY CONSTRUCTION EQUIPMENT TECHNOLOGY

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

Outcomes

Heavy Construction Equip. Technology A.A.S. Degree. . 72 cr.
Heavy Construction Equip. Technology Diploma. . . . . . .64 cr.
Heavy Construction Equip. Technology Certificate . . . . .30 cr.

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: $25.76/hour
- Top earners: $30.41/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.

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

Code	Course	Credits
HCEM1101	General Shop Mechanics - Introduction	2
HCEM1110	Welding and Flame Cutting	2
HCEM1132	Heavy Duty Electrical	3
HCEM1140	Diesel Engine Overhaul I	4
HCEM1161	Specialized Lab I	2
HCEM1170	CAT Basics Training I	1
SPEE1020	Interpersonal Communication	3
	Total Credits	**17**

First Year - Second Semester

Code	Course	Credits
HCEM1234	Heavy Duty Electronics	3
HCEM1246	Diesel Engine Overhaul II	3
HCEM1250	Brakes	2
HCEM1256	Diesel Engine Tune-up	3
HCEM1262	Preventative Maintenance	2
HCEM1270	CAT Basics Training II	2
ENGL1150	Composition I	3
	Total Credits	**18**

Second Year - First Semester

Code	Course	Credits
HCEM2115	Transmissions	4
HCEM2135	Hydraulics I	3
HCEM2177	Machine Electronics I	2
HCEM2238	Hydraulics II	3
HCEM2265	Differentials	2
	Math or Science (MnTC Goal 3 or 4)	3
	General Education Elective**	3
	Total Credits	**20**

Second Year - Second Semester

Code	Course	Credits
HCEM2145	Hydrostatic Systems	3
HCEM2225	Track Drive Systems	3
HCEM2256	Steering Systems	2
HCEM2260	Machine Electronics II	2
HCEM2270	CAT Advanced Training III	2
HCEM2280	Climate Control	2
	General Education Elective**	3
	Total Credits	**17**

TOTAL PROGRAM REQUIREMENTS	**72**

*** Select General Education electives from any MnTC goal area.*

HEAVY CONSTRUCTION EQUIPMENT TECHNOLOGY – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

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
HCEM1161	Specialized Lab I	2
HCEM1170	CAT Basics Training I	1
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
HCEM1262	Preventative Maintenance	2
HCEM1270	CAT Basics Training II	2
ENGL1150	Composition I	3
	Total Credits	**18**

Second Year - First Semester

HCEM2115	Transmissions	4
HCEM2135	Hydraulics I	3
HCEM2177	Machine Electronics I	2
HCEM2238	Hydraulics II	3
HCEM2265	Differentials	2
	Technical Elective*	3
	Total Credits	**17**

Second Year - Second Semester

HCEM2145	Hydrostatic Systems	3
HCEM2225	Track Drive Systems	3
HCEM2256	Steering Systems	2
HCEM2260	Machine Electronics II	2
HCEM2280	Climate Control	2
	Total Credits	**12**
	TOTAL PROGRAM REQUIREMENTS	**64**

* Select Technical electives: HCEM2279 Specialized Lab IV 1–3 credits and/or HCEM2280 Climate Control 2 credits.

HEAVY CONSTRUCTION EQUIPMENT MAINTENANCE – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

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
HCEM1161	Specialized Lab	2
HCEM1170	CAT Basics Training I	1
	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
HCEM1262	Preventative Maintenance	3
HCEM1270	CAT Basics Training II	2
	Total Credits	**16**
	TOTAL PROGRAM REQUIREMENTS	**30**

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HEAVY DUTY TRUCK TECHNOLOGY

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

Outcomes

Heavy Duty Truck Technology A.A.S. Degree . . . . 72 cr.
Heavy Duty Truck Technology Diploma . . . . 64 cr.
Truck Fleet Maintenance Certificate . . . . 29 cr.

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: $23.10/hour
- Top Earners: $29.37/hour

HEAVY DUTY TRUCK TECHNOLOGY – A.A.S. DEGREE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

HDTT1100	Truck Technology Fundamentals	4
HDTT1106	Welding Procedures	2
HDTT1212	Preventive Maintenance	4
HDTT1218	Electrical Systems	4
SPEE1020	Interpersonal Communication	3
	Total Credits	**17**

First Year - Second Semester

HDTT1103	Air Brake Systems	6
HDTT1109	Fluid Power Systems	2
HDTT1215	Suspensions and Steering Systems	4
HDTT1223	Truck A/C	3
ENGL1150	Composition I	3
	General Education Elective**	3
	Total Credits	**21**

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 (MnTC Goal 3 or 4)	3
	Total Credits	**17**

Second Year - Second Semester

HDTT2213	Diesel Engine Fundamentals	4
HDTT2216	Diesel Electronics	3
HDTT2230	Heavy Truck Industry Training	2
HDTT2970	Internship or HDTT2222 Diesel Engine Lab	5
	General Education Elective**	3
	Total Credits	**17**

TOTAL PROGRAM REQUIREMENTS	**72**

*** Select General Education electives from any MnTC goal area.*

HEAVY DUTY TRUCK TECHNOLOGY – DIPLOMA

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

HDTT1100	Truck Technology Fundamentals	4
HDTT1106	Welding Procedures	2
HDTT1212	Preventive Maintenance	4
HDTT1218	Electrical Systems	4
SPEE1020	Interpersonal Communication	3
	Total Credits	**17**

First Year - Second Semester

HDTT1103	Air Brake Systems	6
HDTT1109	Fluid Power Systems	2
HDTT1215	Suspensions and Steering Systems	4
HDTT1223	Truck A/C	3
ENGL1150	Composition I	3
	Total Credits	**18**

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**	3
	Total Credits	**17**

Second Year - Second Semester

HDTT2213	Diesel Engine Fundamentals	4
HDTT2216	Diesel Electronics	3
HDTT2970	Internship (or HDTT2222 Diesel Engine Lab)	5
	Total Credits	**12**
	TOTAL PROGRAM REQUIREMENTS	**64**

*** Select General Education electives from any MnTC goal area.*

TRUCK FLEET MAINTENANCE – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - First Semester

HDTT1100	Truck Technology Fundamentals	4
HDTT1106	Welding Procedures	2
HDTT1212	Preventive Maintenance	4
HDTT1218	Electrical Systems	4
	Total Credits	**14**

First Year - Second Semester

HDTT1103	Air Brake Systems	6
HDTT1109	Fluid Power Systems	2
HDTT1215	Suspensions and Steering Systems	4
HDTT1223	Truck A/C	3
	Total Credits	**15**
	TOTAL PROGRAM REQUIREMENTS	**29**

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RAILROAD CONDUCTOR TECHNOLOGY

Delivery: Daytime Classes
Start: August, October, February, and April
Location: Rosemount Campus

Outcome
Railroad Conductor Technology Certificate . . . . 16 cr.

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 BNSF, Railway, Canadian National, 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 for safe train movements. 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: $26.05/hour
- Top Earners: $39.55/hour

RAILROAD CONDUCTOR TECHNOLOGY – CERTIFICATE

This is a sample course sequence.
Please contact your program advisor regarding your academic plans.

15 Week Term

RRCC1110	Orientation	1
RRCC1120	Introduction to Conductor Service	4
RRCC1130	General Code of Operating Rules	4
RRCC1140	Mechanical Operations	2
RRCC1150	Conductor Duties	2
RRCC1160	Utilization of RR Equip. & Safety Standards	2
RRCC2970	Railroad Conductor Internship	1
	Total Credits	**16**
	TOTAL PROGRAM REQUIREMENTS	**16**

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GENERAL EDUCATION

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. 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.

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.

Hybrid: DCTC offers transferable general education courses in a blended format that includes both face to face and online components for increased flexibility.

For a current schedule of course offering, visit, dctc.edu/go/courses.

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GENERAL EDUCATION

A.S. DEGREE REQUIREMENTS

An Associate in Science degree requires a minimum of 30 semester credits of general education as outlined below. See your program's page in this catalog or your academic advisor for program specific requirements.

REQUIRED COURSES

Communication

ENGL1150	Composition I	3

Human Diversity

SPEE1020	Interpersonal Communication	3

Mathematics *(choose one course numbered over 1000)*

MATS	any Math course (except 1000 and 1205)	3-4

Science *(choose one course numbered over 1000)*

BIOL	any Biology course (except 1200)	3-4
CHEM	any Chemistry course	4
PHYS	any Physics course	3
	Total Credits	**12-14**

ELECTIVE COURSES

Students must complete a minimum of 16-18 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

	Total Credits	**16-18**
	TOTAL REQUIREMENTS	**30**

A.A.S. DEGREE REQUIREMENTS

An Associate in Applied Science degree requires a minimum of 15 credits of general education as outlined below. See the program page in this catalog for program specific requirements.

REQUIRED COURSES

Communication

ENGL1150	Composition I	3

Human Diversity

SPEE1020	Interpersonal Communication	3

Mathematics or Science *(choose one course numbered over 1000)***:**

BIOL	any Biology course (except BIOL1200)	3-4
CHEM	any Chemistry course	4
PHYS	any Physics course	3-4
MATS	any Math course (except 1000 and 1205)	3-4
	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:

Goal 2	Critical Thinking
Goal 3	Natural Sciences
Goal 4	Mathematical/Logical Reasoning
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

	Total Credits	**5-6**
	TOTAL REQUIREMENTS	**15**

DIPLOMA REQUIREMENTS

For students enrolled in diploma programs over 45 credits in length, a minimum of nine credits is required as outlined below. See your program's page in this catalog or your academic advisor for program specific requirements.

REQUIRED COURSES

Communication

ENGL1150	Composition I	3

Human Diversity

SPEE1020	Interpersonal Communication	3

General Education Elective (from any MnTC goal area)   3

Total Credits		**9**
TOTAL REQUIREMENTS		**9**

MINNESOTA TRANSFER CURRICULUM

The Minnesota Transfer Curriculum (MnTC) is the format in which general education is defined and accomplished within the public two- and four-year colleges and universities in Minnesota. Completion of a MnTC course at one institution enables a student to receive credit for lower division general education MnTC coursework upon admission to other MnSCU colleges and universities as well as 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 italicized text after the description of each goal area. Notation of MnTC completion can be added to a student's transcript upon request after completion. (There are two punctuation changes and one wording change here.)

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 ENGL1150, and one SPEE.*

ENGL1125	Business Writing	3 cr.
ENGL1150	Composition I	3 cr.
ENGL1355	Critical Reading and Writing	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 student's awareness of their own thinking and problem-solving procedures. This goal can be met in one of the following three ways: **1)** by completion of one course; **2)** by completion of Goal 1 and a technical program; **3)** by completion of the entire MnTC.

ENGL1355	Critical Reading and Writing	3 cr.
PHIL1200	Critical Thinking	3 cr.
PHIL1450	Philosophy of the Arts	2 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	Introduction to Anatomy & Physiology	4 cr.
BIOL1400	Ecology Field Studies	4 cr.
BIOL1500	General Biology	4 cr.
BIOL2020	Microbiology	4 cr.
BIOL2000	Anatomy & Physiology I	4 cr.
BIOL2010	Anatomy & Physiology II	4 cr.
CHEM1500	Introduction to Chemistry	4 cr.
PHYS1050	Introduction to Physics	3 cr.
PHYS1100	College Physics I	4 cr.
PHYS1200	College Physics II	4 cr.

LAB-LIKE SCIENCES:

BIOL1110	Environmental Science	3 cr.
BIOL1120	Minnesota Nature Study	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.*

MATS1251	Statistics	4 cr.
MATS1300	College Algebra	4 cr.
MATS1320	College Trigonometry	2 cr.
MATS1350	Math for Liberal Arts	4 cr.
MATS1500	Beginning Calculus with Trigonometry	4 cr.
PHIL1250	Introduction to Logic	3 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.*

ECON1000	Survey of the American Economy	2 cr.
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.
HIST1250	Women in America 1490 to Present	3 cr.
HIST1300	World History	4 cr.
HIST1350	World War II	3 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.
POLS1100	The American Political System	3 cr.
PSYC1105	General Psychology	4 cr.
PSYC1200	Abnormal Psychology	3 cr.
PSYC1300	Child/Adolescent Psychology	3 cr.
PSYC1350	Lifespan Development	4 cr.
PSYC1400	Adult/Geriatric Psychology	2 cr.
PSYC 1450	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	3 cr.
SOCY1400	Introduction to Criminal Justice	3 cr.
HIST1600	America, the Civil War, and the 19th Century	3 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.*

ARTS1001	Introduction to Visual Communication	3 cr.
ARTS1101	History of Photography	3 cr.
ARTS1201	The Creative Process	3 cr.
ARTS1300	History of Architecture	4 cr.
ARTS1550	Art History, Renaissance to Modern	3 cr.
ENGL1300	Intro to Creative Writing	3 cr.
ENGL1400	American Short Story	3 cr.
ENGL1550	Intro to Literature	3 cr.
ENGL1570	The Literature of Nature	2-3 cr.
ENGL1625	Film Studies	4 cr.
ENGL1630	Genre Film	1 cr.
ENGL1650	Greek Mythology	4 cr.
ENGL1725	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.
HUMA1100	Introduction to the Humanities	4 cr.
HUMA1125	The Humanities in Modern Minnesota	3 cr.
PHIL1300	Introduction to Philosophy	3 cr.
PHIL1350	Medical Ethics	3 cr.
PHIL1400	World Religions	3 cr.
PHIL1450	Philosophy of the Arts	2 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.*

PSYC1350	Lifespan Development	4 cr.
SOCY1150	Race and Gender	2 cr.
SPEE1020	Interpersonal Communication	3 cr.
SPEE1030	Intercultural Communication	3 cr.
HIST1550	America in the Vietnam Era	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.*

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.*

ENGL1570	The Literature of Nature	2-3 cr.
PHIL1100	Ethics	3 cr.
PHIL1300	Introduction to Philosophy	3 cr.
PHIL1350	Medical Ethics	3 cr.
POLS1100	The American Political System	3 cr.
SOCY1110	Introduction to Sociology	3 cr.
SOCY1250	Juvenile Delinquency	2 cr.
SOCY1400	Introduction to Criminal Justice	3 cr.
HIST1550	America in the Vietnam Era	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.

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.

Mathematical/Logic Reasoning

MATS0100	Mathematics Lab	1 cr.
MATS0200	Basic Mathematics	3 cr.
MATS0305	Introduction to Algebra	4 cr.
MATS0600	Intermediate Algebra	4 cr.

COURSE DESCRIPTIONS

AUTO BODY REPAIR

ABCT1111   Collision Repair Welding I   2
This course covers welding safety, familiarization with oxyacetylene equipment and MIG welder operations.

ABCT1120   Sheet Metal Repair   5
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

ABCT1130   Refinishing Preparation I   2
This course covers refinishing safety, refinishing equipment, masking and surface preparation procedures. Prerequisite: ABCT1120 and ABCT1142

ABCT1142   Glass, Trim, and Hardware   4
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
This course covers various methods of vehicle cleanup and reconditioning.

ABCT1212   Collision Repair Welding II   2
This course covers aluminum welding, resistance type spot welding, weld bonding and the I-CAR welding qualification test. Prerequisites: ABCT1111

ABCT1214   Refinishing Preparation II   3
This course covers procedures for preparation and application of undercoat systems. Panel preparation techniques are also covered. Prerequisites: ABCT1130, and ABCT1142

ABCT1216   Refinishing Application   5
This course covers the application of undercoats and topcoats in refinishing. Color theory, adjustment, and blending will be covered. Prerequisites: ABCT1150, ABCT1214.

ABCT1230   Auto Body Plastic Repair   2
This course covers the different methods of repairing automotive plastics. Prerequisites: ABCT1216.

ABCT2100   Body Electrical   2
This course will focus on electrical troubleshooting and repair problems and procedures relating to collision electrical damage problems.

ABCT2102   Shop Management and Estimating   2
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
This course will focus on sheet metal, unitized body and full frame sectioning and replacement of parts and components. Prerequisites: ABCT1212, and ABCT1120.

ABCT2108   Unibody/Frame/Wheel Alignment I   4
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: ABCT1212, and ABCT1120.

ABCT2212   Unibody/Frame/Wheel Alignment II   6
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: ABCT2108, and ABCT2106.

ABCT2230   Body Mechanical and Air Conditioning   3
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.

ABCT2240   Emerging Technologies   2
This course covers emerging automotive technologies and how they will impact the collision repair field.

ABCT2970   Auto Body Internship
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: ABCT1130, ABCT1230, AABCT2102, ABCT2106, ABCT2108, and ABCT2230.

ACCOUNTING

ACCT1000   Principles of Accounting I   4
This introductory course covers the fundamental accounting concepts and principles which are used in a business environment. These concepts are consistent with generally accepted accounting principles. The phrase "generally accepted accounting principles" (or "GAAP" consists of three important sets of rules: (1) the basic accounting principles and guidelines, (2) rules and standards issued by FASB and (3) the generally accepted industry practices. The course explores the role of accounting as a primary business information system.

ACCT1003   Principles of Accounting II   4
This course continues to explore fundamental accounting concepts and principles. Topics include current and fixed assets, and current and long-term liabilities. Corporations and partnership business types are also explained and defined.

ACCT1005   Principles of Bookkeeping   2
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. THIS COURSE IS THE SAME AS ENTR1200.

ACCT1100   Business Law and Ethics   3
This course is an introductory course in the principles of law as they apply to citizens and business.

ACCT1106   Accounting Mathematics   3
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.

ACCT1206   Payroll Accounting   2
This course covers the various state and federal laws pertaining to computation and payment of salaries and wages. Topics include preparation of employment records, payroll registers, employee earnings records, and state and federal reports. Prerequisite: ACCT1000

ACCT1226   Payroll Accounting   3
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. A special business project will be required. Prerequisites: ACCT1000

ACCT1236   Business Payroll   2
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
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.

ACCT1406   Income Tax   4
This course covers the major Internal Revenue Code sections that apply to the filing of individual and business income tax returns. Major topics covered include a history of income tax law, the tax formula, gross income and exclusions, business and personal deductions, and tax credits. Income tax form preparation is an integral part of this course.

ACCT2000   Intermediate Accounting I   4
This course is a comprehensive study of accounting theory and concepts with an analysis of the influence on financial accounting by various boards, associations, and governmental agencies. Topics include the income statement, balance sheet, cash, marketable securities, notes and accounts receivable, plant and intangible assets, and bonds and leases. Prerequisites: ACCT1003

ACCT2003   Intermediate Accounting II   4
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: ACCT 2000

ACCT2100   Cost Accounting I   4
This course covers accounting for materials, labor, and factory overhead for 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
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
This course is an introduction to computerized applications. Students will learn to prepare financial statements, setup both service and merchandise companies, analyze transactions, make payroll entries, reconcile bank accounts, journalize and post adjusting and closing entries. Prerequisites: ACCT 1000

ACCT2203   Accounting Computer Applications II   3
This course involves the use of a commercial accounting software package to complete an accounting simulation. Topics include depreciation and fixed assets. Prerequisites: ACCT 2000

ACCT2206   Fund/Nonprofit Accounting   3
This course covers the application of generally accepted accounting principles for state and local governmental units. Topics include accounting for states, municipalities, and not-for-profit organizations with some federal government accounting. Prerequisites: ACCT1003

ACCT2306   Auditing   3
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
This course covers the major aspects of personal finance including budgeting, credit, insurance, tax planning, investing and retirement and estate planning.

ADMINISTRATIVE TECHNOLOGY

ADTC1000   Basic Keyboarding   1
This course is an introduction to basic keyboarding with emphasis on developing touch typing skills.

ADTC1005   Keyboarding/Formatting   3
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

ADTC1010   Business English Skills   2
This course is an extensive, comprehensive study of English grammar, spelling, word usage, punctuation, number usage, capitalization and abbreviation rules, and proofreading.

ADTC1017   Technology for the Business Professional   3
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.

ADTC1018   Basic Computer Applications   3
This course covers basic information on the history of computers and their impact on society, computer hardware and desk application software. Students will learn the fundamentals of word processing, database, spreadsheet, and presentation applications. Students will also be introduced to use of the Internet and e-mail. This course meets the Dakota County Technical College's computer literacy requirement.

ADTC1019   Receptionist Skills   2
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, and customer service.

ADTC1020   Office Procedures   4
This course covers areas that develop skill in understanding and performing typical office tasks: office communication, setting up meetings and conferences, travel arrangements, handling mail, records management, and understanding cultural diversity.

ADTC1040   Integrated Office Skills   3
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 creation/integration of office documents. The use of electronic tools and the integration of documents created in various Microsoft Office Suite programs is the primary focus of this course.

ADTC1045   Medical Terminology   2
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.

ADTC1049   Applied Medical Terminology   3
This advanced medical terminology course is a continuation of ADTC1045 Medical Terminology with a focus on word analysis, spelling, pronunciation, and usage of medical terms. Word roots/combining forms, prefixes, suffixes, abbreviations and medical terms will be addressed for the medical specialty areas including oncology, radiology, psychiatry and pharmacology. There will be an emphasis placed on diagnostic terms, laboratory and clinical procedures assigned to each of the body systems. In addition, students will apply medical terminology usage to common healthcare documentations. Prerequisites: ADTC1045

ADTC1051   Human Diseases   3
This course provides basic information about common disease conditions affecting various body systems. There is a focus on the general principles of disease and signs and symptoms of specific disease processes. Major concepts include diagnostic tests, treatment modalities, and medication protocols related to specific disease processes.

ADTC1056   Introduction to Healthcare Documentation   3
This course provides an orientation to the health care delivery system, health records, and the health information profession. A study of the basic concepts of medical record science needed to function effectively as a medical records clerk in a hospital, nursing home, clinic, or physician's office. Teaches the various forms which comprise a medical record, assembly of records, record analysis, medical record anatomy, and terminology and explores other job classifications available in medical records.

ADTC1057   Medical Office Procedures   4
This course is an overview of duties that are performed by a medical administrative assistant and a medical assistant. Emphasis will be on medical/legal issues, patient registration, standard patient forms, medical forms, telephone/communication skills, appointment procedures, medical records. Other topics included in the course will be accounting statements, professional reports/manuscripts, preparing meeting announcements, agendas and minutes. Prerequisites: ADTC1018 or ADTC1030

ADTC1080   Technology in Healthcare   3
The students enrolled in Technology in Healthcare will learn essential concepts important for the successful use of electronic medical records in any career setting. Students will learn the history and standards for electronic medical records and develop practical expertise using a fully functional electronic medical records program. Coursework using realistic patient case studies and records along with actual electronic medical records software will provide the student with practical training that can be transferred to any health care setting. Additional coursework will include advanced PowerPoint, Excel, and Access exercises relating to the healthcare area. Prerequisites: ADTC1005 and ADTC1018.

ADTC1085   Transcription and Speech Editing   3
This course will cover the basics of traditional medical transcription and will expand to learning in-depth editing skills in speech recognition transcription. Students will experience working with documents that are typically generated at a clinic or hospital such as: S.O.A.P. notes, history and physical exams, consultation reports, surgery reports, pathology reports, laboratory reports, discharge summaries and emergency room reports. Prerequisites: ADTC1018 and ADTC1005

ADTC1090   Insurance and Coding   3
This course covers the basics of International Classification of Disease (ICD-10-CM) codes and Current Procedural Terminology (CPT-4) codes. Students will learn the historical background of coding procedures; learn the step-by-step process for coding disease conditions and the various procedures used in the medical field. Using sample exercises and working with an electronic medical record, students will develop skill and accuracy of basic medical coding. An overview of health insurance plans will be discussed. Prerequisite: ADTC1045

ADTC1140   MS Access I   2
This course covers applications of Microsoft Access for Windows software using IBM-networked computers. Students will learn to use a relational database management system, table and form creation/maintenance, record locate/query/sort, report generation, and simple macros.

ADTC1230   MS Publisher   2
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. The spell checker, auto features and Wizards will be introduced.

ADTC1250   Project Management I   3
In this introduction project management course, students will be exposed to the fundamentals of general project management principles. Topics include project management functions, project manager roles and responsibilities, the project life cycle, and conflict resolution.

ADTC1252   Project Management II   3
In this course, the students will continue building on their project management skills by being exposed to basic tools used by project managers. They will learn management techniques for projecting planning, budgeting, scheduling and control techniques, cost estimating and project management software applications. Prerequisite: ADTC1250

ADTC1260   Certification Basics - Word   3
This course covers training in the preparation for students to take the Microsoft Office Specialist Exam for Word.

ADTC1265   Certification Basics - Excel   3
This course covers training in the preparation for students to take the Microsoft Office Specialist Exam for Excel.

ADTC1270   Certification Basics - Access   3
This course covers training in the preparation for students to take the Microsoft office Specialist Exam for Access.

ADTC1275   Certification Basics - PowerPoint   3
This course covers training in the preparation for students to take the Microsoft Office Specialist Exam for PowerPoint.

ADTC1285   Oral Business Communications and Job Seeking
**   Skills   2**
This course covers the development of oral communication skills in the following areas: one-to-one communication, oral presentations to groups, use of MS PowerPoint in presentations and student evaluation of speeches. Students will also learn successful employment interview strategies as well as how to find various job leads, write a successful resume, application letter, and follow-up letter.

ADTC1290   Written Business Communications   2
This course covers the process of communication, including writing techniques and strategies. Students learn by completing a range of writing exercises and critical thinking cases. Specific applications focus

on letter and memorandum writing and formal and informal reports. Communication skills are emphasized along with e-mail usage.

ADTC1340   QuickBooks PRO Basics   2
This online course introduces the basics of using Intuit's QuickBooks Pro PC software for business transactions and basic accounting purposes. Topics covered will include navigating QuickBooks, company setup, entering sales transactions, receiving payments, paying bills, managing bank accounts, managing inventory and running standard QuickBooks reports.

ARCHITECTURE

ARCT1000   Architectural Technology Studio I   5
This course will introduce the beginning architectural technology student to drafting standards and techniques used in both hand and CAD drafting. Students will learn to draw plans, sections, elevations and details for residential projects and the graphic conventions used to communicate information on these drawings. Sustainable building principles will be applied to the commercial projects.

ARCT1020   Methods and Materials I   3
This course will introduce the beginning architectural technology student to the properties and applications of common, as well as new and sustainable residential building materials. This class will cover materials and methods such as: current sustainable practices in home building, wood stud construction, window installation, roofing, foundations, flashing, etc. These materials and construction methods then be applied in the Studio I projects.

ARCT1107   CAD I   3
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 C.A.D. environment will be taught with a hands-on approach to learning. Students will complete self-paced drafting exercises. Prerequisites: A working knowledge of Mac OS, Windows 95, or 3.1 operating systems.

ARCT1207   CAD II   3
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

ARCT1500   Architectural Technology Studio II   5
This course will guide students through the production of construction drawings for light commercial buildings. The larger scale and scope of the projects will build upon skills acquired in Studio I and drawings will be more comprehensive as students learn to integrate building codes and regulations into their designs. Students will apply sustainable practices along with industry standards to complete drawings for residential projects. Prerequisites: ARCT1000 Co-requisites: ARCT1540 and ARCT1207

ARCT1520   Building Codes and Regulations   3
The goal of this class is to provide you with a fundamental understanding of the International Building Code (IBC), the Americans with Disabilities Act and Energy Codes. The class emphasizes Health, Safety, Welfare (HSW) topics such as: building codes, fire codes, accessibility issues, and environmental issues. Prerequisites: Prior to, or currently enrolled in, ARCT1500, ARCT1207 and ARCT1540.

ARCT1540   Methods and Materials II   3
This course will examine the characteristics and properties of common, as well as new and sustainable, commercial building materials such as: concrete materials, formwork, reinforcement, steel frame construction, lightweight steel framing, metals, curtain, walls, etc. These methods and materials, including sustainable principles, will be applied to Studio II projects. Co-requisite: ARCT1500.

ARCT2000   Mechanical and Electrical Systems   3
This course will introduce the student to electrical/lighting, plumbing, HVAC, and fire protection. The course will examine the integration of various building systems into building design and look at energy efficiency and other means of contributing to a building's sustainability.

ARCT2020   Building Structures   3
This course provides a basic understanding of the structural design for beams, columns and joists in wood, steel and concrete. It emphasizes the nature of frame structures and is intended to provide an architectural technician with the knowledge necessary to work and communicate effectively with a structural engineer.

ARCT2101   Architectural Studio III   5
Students prepare architectural drawings for multi-story commercial buildings. This course builds upon the students' architectural technology skills as they prepare construction drawings for more complex buildings. Content from prior courses and sustainability will be integrated into comprehensive studio projects.

ARCT2107   CAD III   3
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
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 small commercial project. Students will incorporate the completed drawings into their portfolios for internship interviews with future employers. Prerequisites: ARCT2101

ARCT2970   INTERNSHIP: Architecture Technology
This course is taught throughout internship with students making the transition from school to work. Internship events will begin with job seeking and interview activities. Upon acceptance of an internship agreement with an internship employer, the internee will begin productive work in a professional design office workplace. The internship coordinator will visit the workplace. The student internee and internship employer will complete an evaluation form. In addition, students will pursue special topics technology research in the field of architecture during the internship period. Prerequisites: ARCT2100

AUTO RESTORATION (AUTO BODY TECH)

**ARES1000   Introduction to Auto Restoration Welding/Sheet
                Metal   3**
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.

ART

ARTS1001   Intro to Visual Arts   3
We live in a world that often places us in a position of visual overload. Images flood into our lives through television, print and social media.

Although we innately interact with and react to the visual world, it is critical that the educated student learns to appreciate the production, history and the cultural relevance of visual art. This study includes perspectives on art from ancient times to present, but an emphasis is placed on the cultural significance of art from the modern era to the present time. By studying and making visual art, students will become more connected to the visual world around them and to their own avenues of artistic expression. Meets MnTC Goal 6

ARTS1101   History of Photography   3
This course will allow students to explore photography and its effects 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. Meets MnTC Goal 6

ARTS1201   The Creative Process   3
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. 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. Meets MnTC Goal 6

ARTS1310   History of Architecture   3
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 building and architecture as cultural artifacts. Meets MnTC Goal 6

ARTS1550   Art History, Renaissance to Modern   3
This introductory course gives students a deeper appreciation and knowledge of Western art and the cultures that created it. This course focuses on the fascinating changes that occurred in the Italian Renaissance and continues through to modern artists and influences of the 20th century. Meets MnTC Goal 6

ASEP

ASEP1101   Automotive Fundamentals   3
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.

ASEP1102   Electrical and Fuel Systems   3
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
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 infra-red operating and diagnosis. Prerequisites: ASEP1102; or instructor approval

ASEP1104   Body Electronics   3
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: ASEP1103; or instructor approval.

ASEP1105   Heating and Air Conditioning   3
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
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
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
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
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
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
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 infra-red analysis. Also, any new products or systems introduced on GM vehicles that have not been previously covered will be addressed. Prerequisites: ASEP1104

ASEP2107   Steering and Suspension   2
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
This course covers the removal, disassembly, operation, reconditioning, assembly, installation, and diagnosis of General Motors automatic transaxles and transmission.

ASEP2111   Engines   3
This course covers the operation, diagnosis, removal, assembly, 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
This course covers the disassembly, operation, reconditioning, assembly, and adjustments of General Motors front and rear axles, drive axles, and drive shafts.

ASEP2212   Advanced Diagnostics/New Model Update   1
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, TECH1, and TECH 2, as well as additional lab scope and infra-red analysis. Also, any new products or systems introduced on GM vehicles that have not been previously covered will be addressed.

ASEP2303   Dealer Work Experience III   5
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.

AUTOMOTIVE

AUTM2011   Suspension, Steering and Alignment   3
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. Alignment angles and their relationship to vehicle handling.   Prerequisites: AUTM2100

AUTM2025   Brakes   3
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: AUTM2100

AUTM2032   Manual Trans-Transaxle, Clutches, Transfer Cases and Differentials   3
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
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 the textbook.

AUTM2110   Automotive Engine Electrical Systems   3
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 student textbook. Prerequisites: AUTM2100

AUTM2115   Automotive Body Electrical Systems   3
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 student textbook. Prerequisites: AUTM2100

AUTM2125   Engine Theory and Operation   4
This course includes general engine diagnosis, cylinder head diagnosis and repair, valve train diagnosis and repair, engine block diagnosis and repair. The class stresses how engines work and how to repair them. Prerequisites: AUTM2100

AUTM2136   Heating, Ventilation, and Air Conditioning 3
This course covers the principles of air conditioning and types, diagnosis, testing, and repair of air conditioning systems. The course includes practical work on air conditioning systems such as evacuating, replacement of components, charging, recycling, and performance testing.

AUTM2141   Advanced Automotive Electronic Systems   5
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 student textbook. Prerequisites: AUTM2110, AUTM2115, and AUTM2136

AUTM2205   Advanced Driveline and Chassis Systems   5
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
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.

AUTM2225   Advanced Engine & Transmission Diagnosis & Repair 6
This course includes: advanced automatic transmission and engine diagnostic procedures. Advanced repair of automatic transmissions and engines. Prerequisites: AUTM2125, and AUTM2215

AUTM2315   Ignition System Operation, Diagnosis and Repair   3
This course covers the operation and servicing techniques required to diagnose and repair ignition system related concerns encountered on modern automobiles. Prerequisites: AUTM2100

AUTM2322   Fuel Systems Operation, Diagnosis, and Repair   3
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
This 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
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: AUTM2315, AUTM2325

BIOLOGY

BIOL1110   Environmental Science   3
This course emphasizes the fundamental concepts of ecology as it pertains to the impact of humans on their environment. It addresses the demands placed on the biosphere by the exploitation of natural resources and energy, the creation of pollution and the disposal of waste. This course is interdisciplinary, combining concepts from the natural and physical sciences (e.g. biology, chemistry, geology, physics) with the social sciences (e.g. economics, politics, ethics, history) to present an understanding of how wise stewardship of earth's resources can result in the long-term sustainability of our shared environment. Meets MnTC Goal 3,10

BIOL1120   Minnesota Nature Study   3
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 are stressed. Meets MnTC Goal 3

BIOL1200   Biology and Society   3
This interdisciplinary course explores the interaction between complex human perspectives and the technical and scientific aspects of biology. Issues with a biological basis such as human health, environmental safety, biodiversity, agriculture, and natural resources naturally lead to applied ethical, social, political, and economic questions. Students will explore the technical aspects of timely biological issues, breakthroughs, and technological applications in the context of their societal implications. Meets MnTC Goal 10

BIOL1310   Introduction to Anatomy and Physiology   4
This lecture and laboratory-based course is designed for introductory study of human organ systems (integumentary, skeletal, muscular, nervous, endocrine, cardiovascular, respiratory, digestive, and urogenital) by structure and function. Cellular function, human reproduction, development, and heredity are other topics integrated into the biology of the human body. 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. Meets MnTC Goal 3

BIOL1400   Ecology Field Studies   4
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
This course surveys the basic principles of biology. Content topics include fundamental concepts of cellular structure and metabolism, inheritance, biodiversity, ecology, and evolution. The lab component includes application of concepts with an emphasis on observation, the scientific method, and analysis. This course provides a foundation for students pursuing health-related careers as well as those in non-science majors. Meets MnTC Goal 3

BIOL2000   Anatomy & Physiology I   4
This course is the first semester of a two-semester lab-science course intended for students pursuing careers in fitness and allied health fields. Human anatomy and physiology are studied using a body systems approach, with emphasis on the interrelationships between form and function at the gross and microscopic levels of organization. Homeostasis is an integrating theme throughout this course. Content topics include basic anatomical and directional terminology, fundamental concepts and principles of cell physiology, histology, and the integumentary, skeletal, muscular, and nervous systems. Dissection of individual organs and whole organisms may be included. Meets MnTC Goal 3

BIOL2010   Anatomy & Physiology II   4
This course is the second semester of a two-semester lab-science course intended for students pursuing careers in fitness and allied health fields. Human anatomy and physiology are studied using a body systems approach, with emphasis on the interrelationships between form and function at the gross and microscopic levels of organization. Homeostasis is an integrating theme throughout this course. Content topics include immunity, metabolism, fluid balance, development, and the cardiovascular, hematopoietic, respiratory, lymphatic, digestive, urinary, and reproductive systems. Dissection of individual organs and whole organisms may be included. Meets MnTC Goal 3

BIOL2020   Microbiology   4
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. Prerequisite BIOL1500. Meets MnTC Goal 3

BIOMEDICAL EQUIPMENT TECHNOLOGY

BMET1112   DC Electricity   3
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
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 the Federal Communication Commission has in managing the radio frequency spectrum. This class is intended to be an introductory level class.

BMET1122   Administrative Functions   4
This course introduces students to the basic operation of hospitals; the requirements of regulatory agencies; biomedical departmental policies

and procedures and the managing of information, work orders and vendors.

BMET1123   AC Electricity   3
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.

BMET1140   Solid State Electronics   4
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 computer component and circuit parameters. These will then be compared with measured data. Circuits will be designed and evaluated by broad boarding and/or computer simulation software.

BMET1220   Medical Device Technology   4
This course provides students with an industry overview/perspective of the biomedical technology field. In this course students will learn the relationships between equipment and patient care and the various sensors and transducers used by medical equipment. Typical electronic circuitry used in medical equipment will be covered.

BMET1231   Biomedical Instrumentation II   4
This course provides a foundation in the theory and operation of medical test equipment. The student will use various types of test equipment to test and measure the performance of diagnostic, monitoring and surgical equipment. Each class will have a lecture component on a specific type of instrumentation following the syllabus. Prerequisites: BMET1220.

BMET1530   Digital and Micro Processor   3
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: BMET1123, BMET1140.

BMET2110   Professional Skills   2
This course will consist of class lecture, practical exercises and reflective compositions. The student will focus on the professional skills necessary to thrive in the Healthcare Technology Management field.

BMET2210   Biomedical Instrumentation I   4
This course studies the various technologies used in the medical care field. Areas of study will cover the use of various test equipment, performing preventive 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. Each class will have a lecture component on a specific type of instrumentation following the syllabus.

BMET2940   BMET Field Experience   1
In this course students work in a clinical site within the Biomedical Engineering Department. They are expected to observe and apply all of the BMET skills learned thus far - the same skill that would be expected of an employee.

BMET2970   Biomedical Equipment Technology Internship
In this course students work full shifts in a clinical site within the Biomedical Engineering Department. They are expected to observe and apply all of the BMET skills learned thus far - the same skill that would be expected of an employee.

BUSINESS MANAGEMENT

BUSN1000   Foundations of Management   3
This course will provide you with background and theories of supervision and management, and the key skills required to be successful supervisor, manager and entrepreneur. Learn to effectively manage in an ever increasingly diverse workforce. 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, organizing, staffing, directing, and controlling. Develop new skills in communication, correcting or rewarding performance, and overall management of resources.

BUSN1010   Leadership   3
Learn concepts to become an effective leader in today's global business environment. Determine your leadership style and the implications of that style on work group performance. Incorporate ethics, cooperate mission, vision and culture into a powerful leadership strategy. Enhance your ability to motivate and positively influence others in an increasingly diverse workforce. Model leadership behaviors and inspire, challenge, enable and encourage those around you toward a common purpose.

BUSN1020   Management Effectiveness   3
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 wasters and stressors. Explore strategies to improve time utilization in workgroups.

BUSN1030   Financial Management   3
This course provides the non-financial manager/supervisor an understanding of business accounting terms, annual reports, 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. You will be introduced to financial business plans.

BUSN1040   Organizational Behavior   3
We will review, discuss and analyze some of the things that make an organization of any size and purpose "tick." We will examine the ways that systems and values help to make up an organization's culture. We will discuss the ways individuals work inside an organization and ways they influence those around them. And we will consider in detail what this all means in the context of today's call for constant change. The focus of this course will be on application. We will work to understand theories as they can be practiced. We will work with models and tools that have practical application in our many endeavors. Ultimately, success will be judged on each participant's ability to make a difference outside the classroom.

BUSN1100   Human Resources Management   3
This course focuses on providing supervisors and managers an overview of the principles and practices of Human Resources Management functions in today's organizations of any size. Emphasis areas include Recruitment and Selection, Orientation, Compensation and Benefits, and Managing Employee Relations.

BUSN1110   Business Law and Ethics   3
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 other factors that affect business operations.

BUSN1120   Managing Performance   3
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.

BUSN1130   Risk Management   2
This course is designed to give the supervisor or manager an overview of how to provide a safe and healthy work environment. Supervisors/managers will be able to develop, based on knowledge gained in this course, a safety plan, conduct a job safety analysis, new employee orientation, job safety training, perform workplace inspections and conduct effective accident investigations.

BUSN1140   Training and Developing Employees   3
Consider employee training and development needs from orientation through progressive job training to enhance organizational effectiveness. 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. Understand the risks and rewards of the training process. Create a positive physical, social and emotional environment that arouses learning abilities while reducing learning barriers.

BUSN1200   Quality Management   4
Learn how to integrate TQM into planning and project management, strategic management, process improvement and how to modify an organizations behavior. Assess supervisor's roles and responsibilities related to quality including identifying and meeting customer needs, applying problem solving tools and techniques for improving systems and processes and making quality decisions. Develop a quality training plan for work group members and enhancing work group commitment to continuous quality improvement.

BUSN1210   Project Management   2
Understand the project management process and learn to utilize the appropriate tools to initiate, plan, execute, control and close projects. Learn to apply knowledge, skills, tools and techniques to project activities to meet project requirements. Understand how organizational planning impacts the projects by means of project prioritization based on risk, funding, and the organization's strategic plan.

BUSN1220   Effective Business Communication   3
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 to apply skills in any situation to achieve win-win negotiations.

BUSN1230   Operations Management   1
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.

BUSN1240   Creativity and Problem Solving   3
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. Another important focus is to master conflict resolution and negotiation strategies essential for supervisors and others in leadership positions in fostering self-managed work teams.

BUSN1300   Multicultural Mentorship I   2
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 BUSN1310.

BUSN1310   Multicultural Mentorship II   1
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.

BUSN1320   Managing Diversity   3
Identify what it takes to become a diversity leader in your organization and community. Learn the complexities of managing in 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.

BUSN1330   Leading a Multicultural Workforce   3
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.

BUSN1340   International Business   3
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 effects of cultural contexts in negotiation and management. Explore strategies for international and global business.

BUSN1350   Multicultural Conflict Resolution   2
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 communication skills, developing mediation techniques, understanding the conflict management continuum resolving multicultural conflict, and comprehending the Alternative Dispute Resolution progression.

BUSN1500   Fundamentals of Business   3
Gain an understanding of management concepts, principles, and applications for effective operations of industrial distribution firms. Topics covered are concepts of rationale of discounting, financial systems, inventory management, purchasing, vendor evaluations, profitability analysis, warehouse management and future trends.

CHEMISTRY

CHEM1500   Introduction to Chemistry   4
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

CIVIL ENGINEERING TECHNOLOGY

CIVL1121   Basic Computer Aid Design   4
This is the first course in Computer Aided Design (CAD) lab work for Civil Engineering Technology Students using AutoCAD software. It will present the fundamentals of AutoCAD including but not limited to command structure, setting units and limits, drafting primitives, layering,

use of editing tools, grid, snap, and axis commands. The assignments require extensive use of the Civil Engineering Technology CAD lab.

CIVL1130   Beginning Surveying   3
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, leveling, bearings and azimuths, topography, and mapping.

CIVL1141   Civil Engineering Technology and Government   1
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
Geographic Information Systems (GIS) is information in context. The ability to tie information to a spatial location is basis of GIS. GIS allows us to view, understand, question, interpret, and visualize data in many ways the reveal relationships, pattern, and trends in the form of maps, reports, and charts. In this class the student will learn how to use GIS and apply it to civil engineering and other related practices. Completing civil engineering projects involves skills in health, marketing, environmental studies, geography, natural resource management and many other disciplines. These skills will be developed by using GIS to perform analysis of spatial and tabular data in the field of civil engineering.

CIVL1161   Civil Engineering Project Management   3
This course introduces the student to a key element of the Civil Engineering task: Project Management. The student will learn the elements of managing a construction project and work out project schedules by hand and with PM software programs.

CIVL1211   Materials Testing   3
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.

CIVL1221   Civil Engineering Technology Drafting   5
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 Autodesk Civil 3D.

CIVL1230   Intermediate Surveying   4
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
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.

CIVL2120   Construction Inspection   3
Develop an understanding of the various roles that the construction inspector plays, and methods used by the construction inspector to document and enforce compliance with the specifications of a construction contact.

CIVL2130   Soil Mechanics Survey   3
Determination of soil composition and structure is the first phase of project delivery for every type of civil engineering related activity. This course covers the classification of soils through; soil exploration, basic geology, hydraulics of groundwater, weight-volume relationships, sampling procedures, stresses, strains, bearing capacity, settlement and expansion, compaction, stabilization, and an introduction to foundations and retaining walls. Soil mechanics are determined by both field and laboratory test methods. In this course, you will gain hands on experience by applying the methods that are commonly performed to determine soil mechanics.

CIVL2141   Hydrology and Storm Water Management   3
This course is an introduction to storm water management as it relates to the design of storm water conveyance systems, and ponds using various engineering tools. Prerequisites: 29 credits of CIVL

CIVL2150   Eco-Sensitive Design   3
This course is an introduction to the design of sites, and buildings with methods, materials, and philosophies that produce sustainability and protect the world's ecosystems.

CIVL2210   Project Design: Utilities Design, Road Design, and Grading   5
This course is a comprehensive introduction to the design of civil projects from points to plans and specifications. Each student will complete a project including surface creation; parcels; site utilities; roads; grading; engineer's estimates; specifications; full set of grading, and street and utility plans; construction contract documents. Prerequisites: CIVL1160, CIVL2120, CIVL 1220, CIVL2141, CIVL2240, CIVL2130, CIVL2220, CIVL2231

CIVL2220   Properties of Construction Materials   3
This course is an introduction to the Properties of Construction Materials normally used in Civil Engineering applications. Prerequisites: CIVL1211

CIVL2231   Specifications and Contract Administration   2
Students will learn about the legal aspects of contracts and bidding; types of construction documents, including Bid Forms, Specifications, Bonds, and Contract Documents; interpretation of technical building specifications and their application.

CIVL2240   Estimating   3
This course is a comprehensive introduction to the estimating practices used in the construction industry. Prerequisites: CIVL2220

CIVL2970   Internship   3
This course is required for graduation and consists of a minimum of 96 hours of experience in the Civil Engineering Technology industry as an intern. Intern tasks can vary: surveying, construction inspection, CAD

work, and office work of a Civil Engineering Technician. Prerequisites: First year CIVL classes.

DENTAL ASSISTANT

DENT1100   Dental Science   4
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

DENT1110   Pre-Clinical Dental Assisting   3
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

DENT1120   Dental Health   2
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

DENT1135   Chairside Assisting I   4
This course introduces the student to the fundamentals of working in a dental office setting as a chairside assistant. It introduces concepts of dental charting, techniques of basic equipment, supplies, four-handed dentistry, oral evacuation and instrument identification and their proper use. This course also provides an introduction to the psychology of patient management skills necessary for effective interaction with patients.

DENT1145   Dental Materials   4
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.

DENT1250   Radiology   5
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 the procedural techniques for exposing them. Prerequisites: Admission to Dental Assisting Program or instructor permission

DENT1260   Expanded Functions   5
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

DENT1275   Chairside Assisting II   4
This course furthers knowledge of chairside assisting duties by presenting 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, including orthodontics, oral surgery, endodontics, pediatrics, prosthodontics, and oral pathology. The student will be taught to identify the instruments, materials, and procedures needed to gain skills in assisting the dentist with each specialty.

DENT1280   Dental Practice Management   2
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. Prerequisites: Admission to Dental Assisting Program or instructor permission

DENT2970   EXTERNSHIP: Dental Assistant   8
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

ECONOMICS

ECON1000   Survey of American Economy   2
This course is an introduction to the literature and vocabulary that is used in the field of economics. Also covered in the course will be an overview of the organization of the economy of the United States and how it relates to the rest of the world. Meets MnTC Goal 5

ECON1100   Microeconomics   3
This course is an introduction to: price mechanisms, supply and demand, resource allocation, analysis of market structures, distribution of income, and business decisions with regard to cost analysis. Meets MnTC Goal 5

ECON1200   Principles of Macroeconomics   3
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. Meets MnTC Goal 5

EARLY CHILDHOOD AND YOUTH DEVELOPMENT

ECYD1100   Introduction to Early Childhood Careers   3
This course provides an overview of the early childhood field, including theories, philosophies, missions, and regulations. It examines the roles and responsibilities of professionals in a variety of career settings, including child life.

ECYD1205   CDA Professional Resources   1
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. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD1206   Parent and Professional Relations   2
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. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD1210   Child Growth and Development   3
This course examines the major developmental milestones for children, both typical and atypical, from conception through adolescence in the areas of physical, psychosocial, and cognitive development. Also emphasizes interactions between maturational processes and environmental factors. While studying developmental theory and investigative research methods, students will observe children and analyze characteristic of development at various stages. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD1220   Health, Safety, and Nutrition   3
An introduction to the regulations, standards, policies, and procedures, prevention techniques, and early childhood curriculum related to health, safety, and nutrition. The key components that ensure physical health, mental health, and safety for both children and staff will be identified, as well as the importance of collaboration with families and health professionals. A focus will be on integrating the concepts into everyday planning and program development. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD1230   Guiding Children's Behaviors   3
This course examines positive strategies to guide children's behavior in the early childhood setting. It also examines ways to establish supportive relationships with children and guide them in order to enhance learning. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD1240   Learning Environment and Curriculum   3
Presents an overview of knowledge and skills related to providing appropriate curriculum and environments for young children. Examines the role of the teacher in providing learning experiences to meet each child's needs, capabilities, and interests, and ways to implement the principles of developmentally appropriate practices. Will provide an overview of content areas including (but not limited to): Language and literacy, social and emotional learning, sensory learning, art and creativity, math and science. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD1310   Infant and Toddler Caregiving   2
This course examines developmental theory and caregiving skills unique to infants and toddlers. Also included are strategies that support diversity and anti-bias perspectives, environment and research-based curriculum models that are developmentally appropriate for infants and toddlers. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD1325   Observation and Assessment   3
This course focuses on the appropriate use of assessment and observation strategies to document development, growth, play and learning to join with families and professionals in promoting children's success. Recording strategies, rating systems, multiple assessment tools and portfolios are explored. There will be a focus on increasing objectivity in observing and interpreting children's behavior, observing developmental characteristics and increasing the awareness of normal patterns of behavior. Prerequisite: ECYD 1210 or Instructor Permission. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD1340   Curriculum Planning   3
Provides an advanced level of curriculum planning. Emphasis is on organizing, implementing, and evaluating developmentally appropriate curricula. Prerequisite: ECYD1240 Note: This course requires a clear Minnesota Criminal Background Study.

ECYD1410   Infant and Toddler Field Experience   1
This course provides students with the opportunity to apply knowledge and skills in both infant and toddler settings. Students will implement a variety of learning experiences and interactions that are developmentally and culturally sensitive to infants and toddlers. Prerequisites: ECYD 1210 or ECYD 1310 and instructor permission. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD1510   Practicum I   3
In this course students will demonstrate early childhood teaching competencies under guided supervision to make connections between theory and practice and developing professional behaviors. Students apply comprehensive understanding of children and families; developmentally appropriate, child-centered, play-orientated approaches to teaching and learning and knowledge of curriculum content areas. They design, implement and evaluate experiences that promote positive development and learning for all young children. Prerequisites: ECYD1100, ECYD1210, ECYD1220, ECYD1230, and ECYD1240. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD2320   Children with Differing Abilities   3
Examines the child with differing abilities in an early childhood setting. Students will integrate strategies that support diversity and anti-bias perspectives, provide inclusive programs for young children, apply legal and ethical requirements including, but not limited to ADA and IDEA, differentiate between typical and exceptional development, analyze the differing abilities of children with physical, cognitive, health/medical, communication, and/or behavioral/emotional disorders, work collaboratively with community and professional resources, utilize an individual education plan, adapt curriculum to meet the needs of children with developmental differences, cultivate partnerships with families who have children with developmental differences. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD2500   Shadow Study   1
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. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD2501   Experiential Learning   1
This course provides students with an opportunity to experience both clinical and non-clinical sites, as well as expertise in the field. Emphasis will include volunteer experience in a selected setting. Course goals are based on individual need. Prerequisite: Instructor Permission. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD2510   Practicum II   3
The course provides an opportunity to apply knowledge and skill in an early childhood setting. Students implement a variety of learning experiences that are developmentally appropriate for and culturally sensitive to a specific age and group of children. Prerequisites: ECYD1510, ECYD1325, ECYD1340, and ECYD2320. ECYD2600

must also be taken prior to or concurrently with 2510. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD2560   Language Development and Literature Literacy Experiences   3
The course provides an overview of language learning experiences in early childhood settings and a detailed study of language, literature and literacy experiences. Students will integrate knowledge of children's language and literacy development, learning environments and teaching strategies to select, plan and present and evaluate literature experiences to children of different abilities and diverse backgrounds. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD2570   Working with Diverse Families and Children   3
Examines how to work with many types of families. Investigates the importance of the family/school partnership, study methods of effectively communicating with families, and identify community organizations and networks that support families. Various classroom strategies will be explored emphasizing culturally and linguistically appropriate anti-bias approaches supporting all children in becoming competent members of a diverse society. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD2580   Creative Development Experiences   3
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. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD2600   Organizational Leadership and Management   3
In this course the students will discuss the personal and professional reasons for becoming a teacher, ways to advocate in this profession and will develop a plan for continuous education and professional development. Students will be able to improve their skills in working with other by learning strategies for team building, coping with stress, and problem-solving. Students will also study professional ethics and procedures for evaluating self and staff. Opportunities for professional membership and conferences will also be provided. Prerequisites: Diploma Courses. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD2700   Project Exceptional I   1
This course is Part 1 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. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD2701   Project Exceptional II   2
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. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD2702   Project Exceptional III   2
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. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD2704   Transforming the Difficult Child: The Nurtured Heart Approach   1
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. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD2705   Understanding Autism and the Early Childhood Role 1
This course will explore the key characteristics of Autism Spectrum Disorder and give early childhood practitioners tools to more effectively include a child with Autism in their child care setting. In addition it will discuss key information about developmental red flags as they relate to Autism and key referral information for educators to share with parents. Included in this interactive workshop are myths and facts about Autism as well as practical strategies and tips for inclusion. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD2713   Culture, Family and Providers   1
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.

ECYD2715   Sign Language in Early Childhood   1
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.

ECYD2900   Introduction to the Child Life Profession: History and Practice   3
This course offers a basic knowledge of the child life profession. Elements covered include history and current scope of practice, impact of illness and stress, coping theory and strategies, and patient and family-centered care. Students will also examine the modalities of play and the role of preparation in healthcare settings. *This course is taught by a Certified Child Life Specialist. Prerequisite: ECYD1210 and instructor permission. Note: This course requires a clear Minnesota Criminal Background Study.

ECYD2950   Field Experience   3
Instructor permission is required for this course. Note: This course requires a clear Minnesota Criminal Background Study.

EKG TELEMETRY TECHNICIAN

EKGT2000   EKG Telemetry Technician   6
This comprehensive 6 credit course will prepare students to be an EKG Technician and take the Certified EKG Technician (CET) exam. An EKG Technician attaches electrodes to the patient's body which then send a signal to a machine displaying the activity in a recognized pattern. The technician will recognize abnormalities in EKG tracings and report them to a physician or other authorized healthcare providers for interpretation. Students will study: cardiac anatomy and physiology, EKG equipment (attaching to patients, proper safety and operation, recognize artifacts and resolve problems), how to recognize tracings that deviate from normal and prioritize reporting of such deviations, heart rhythms and waveforms, obtain basic vitals, HIPAA compliance, use of "Holter" monitors, introduction to stress tests and 12-lead EKGs, and more. Electrical Construction & Maintenance

ELEC1110   D.C. Electricity Theory and Lab   3
This course covers investigation of direct current and its behavior

in series, parallel, and series/parallel circuits; measuring devices and components; and electromagnetism.

ELEC1120   A.C. Electricity Theory and Lab   3
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 resonation.

ELEC1130   National Electrical Code I   3
This course covers the requirements of the National Electrical Code.

ELEC1137   Construction Site Safety   1
Safety in the workplace is everyone's responsibility. This course covers basic employee safety training for hazards commonly encountered on a construction site or an industrial workplace. Employees can greatly reduce the chance of injury to themselves or co-workers by carefully following the safety rules and safe work practices.

ELEC1138   Computer Applications for Electricians   2
This course covers the basics of using Personal Computers (PC's) and the Microsoft Office Professional suite of programs, including Word, Excel and PowerPoint to create documents, spreadsheets and presentations. Students will also be introduced to the Internet, electrical industry applications and e-mail.

ELEC1140   Blueprint Reading for Technicians   3
This course investigates blueprint reading for electricians. This course consist of basic sketching and drawing techniques, applications of plans, scales and scaling applications, symbology, and print reading.

ELEC1210   Analog and Digital Electronics Theory   2
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 and Digital Electronics Lab   4
This course covers connecting, testing, and analyzing semiconductors, power supplies, amplifiers, digital circuits, microprocessor applications, sensors, and signal coupling materials/devices.

ELEC1230   Construction Skills and Introduction to Wiring Theory 3
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.

ELEC1240   Construction Skills and Introduction to Wiring Lab   6
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.

ELEC2110   Electrical Apparatus Theory   3
This course will consist of technical instruction and assessment of knowledge related to the installation and operation of electrical apparatus. Students will receive instruction on basic and complex control circuits, single-phase and three-phase motors and transformers, across-the-line motor controllers, reduced voltage starters, variable frequency drives, and power distribution and transfer apparatus. In addition, students will study the National Electrical Code requirements governing the installation of electrical equipment and apparatus. The majority of the technical information will be used to support a parallel lab course.

ELEC2120   Electrical Apparatus Lab   6
This course will consist of clearly directed lab exercises with the expectation of exact results, performance evaluations and related assignments. Students will have an opportunity to connect, troubleshoot, and operate both basic and complex control circuits, connect and operate single-phase and three-phase motors, across-the-line motor controllers, reduced-voltage starters, and variable frequency drives. In addition, students will connect and operate single-phase and three-phase transformers, autotransformers, and other electrical equipment and apparatus. The supporting technical information will be provided through a parallel theory course.

ELEC2131   Programmable Logic Controllers Theory   2
Course work includes the technical information supporting a parallel lab course. Students will learn Allen-Bradley RSLogix 500 and RSLogix 5000 programming software to write, edit, download, and operate control programs for Allen-Bradley MicroLogix 1100, SLC-500, and CompactLogix PLC hardware. Students will learn Allen-Bradley Panelbulder32 programming software to create applications for the Panel view 300 and 600 operator interface terminals. In addition, students will study basic instrumentation and networking strategies associated with automation technologies.

ELEC2141   Programmable Logic Controllers Lab   4
This course work will consist of clearly directed lab exercises with the expectation of exact results, performance evaluations and related assignments. Students will use Allen-Bradley RSLinx, RSLogix 500 and RSLogix 5000 programming software to write, edit, download, and operate control programs for Allen-Bradley MicroLogix 1000, MicroLogix 1100, SLC-500, and CompactLogix PLC hardware. Students will use Allen-Bradley Panelbulder32 programming software to create applications for the Panelview 300 and 600 operator interface terminals. In addition, students will study basic instrumentation and networking strategies associated with automation technologies. The supporting technical information will be provided through a parallel theory course.

ELEC2210   National Electric Code II   3
This course covers continued requirements of the National Electrical Code. Prerequisites: ELEC1130.

ELEC2220   Electrical/Electronic Controls and Systems Theory   2
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
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 and Maintenance Wiring Theory and Lab   3
This course covers the use of materials and design of industrial wiring, industrial tools and equipment, service equipment, and maintenance technology. Prerequisites: ELEC1230 and ELEC1240.

ELEC2251   Commercial Wiring Theory and Lab   3
This course covers the use of materials and design of commercial wiring, commercial tools and equipment, service equipment, and maintenance technology. Prerequisites: ELEC1230 and ELEC1240.

ELEC2260   Heating, Ventilation, and Air Conditioning Wiring Theory and Lab   3
This course covers the use of materials and design of materials and equipment for heating, ventilating, and air conditioning residential, commercial and industrial buildings. Prerequisite: ELEC1230 and ELEC1240.

ELECTRICAL LINE WORKER

ELLW0098   Introduction to Climbing   1
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
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
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
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 lineworker 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
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: ELLW1110, ELLW1120, and concurrent enrollment in ELLW1141

ELLW1141   Distribution IIB   4
This course covers more of the material that is in ELLW1140 Distribution IIA. Prerequisites: ELLW1110, ELLW1120, and concurrent enrollment in ELLW1140

ELLW1150   Construction Planning and Practices   2
This course covers the use of different drawings, maps, and construction materials used in the lineworker'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: ELLW1110

ELLW1160   Transformers I   4
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: ELLW1130 and concurrent enrollment in ELLW1162

ELLW1162   Transformers II   4
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. Concurrent enrollment in ELLW1160

ELLW1170   Line Construction and Maintenance A   4
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, dead ends, cross arms, 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. Concurrent enrollment in ELLW1172

ELLW1172   Line Construction and Maintenance B   4
This course covers the continuation of line construction and maintenance. The application of ties, standard and preformed with sticks and live line applications, is covered. The use of protective cover-up materials for lineman and support structures is covered. The transferring and handling of energized conductors using temporary supports, etc. are also covered. Concurrent enrollment in ELLW1170

ELLW1180   Underground Cable and Fault Locating   2
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
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, writing cover letters, completing applications, preparing for interview questions, and using the computer highway for job searching.

ENGLISH - GEN ED

ENGL0114   College Reading I   3
The course is designed to develop the effective reading and clear thinking skills that are required to be successful in college today.

ENGL0118   Basic English and Writing Review   3
This course is designed to prepare students for Basic Communications. Students will learn the parts of speech, word usage, grammar, capitalization, and punctuation. They will use these skills in short writing assignments.

ENGL0123   Medical Reading and Study Skills   4
This course is designed to help students who are in or planning to enter health care programs strengthen basic Reading Comprehension and vocabulary skills. Students will work on developing efficient study skills. Learning experiences will include use of excerpts from health care textbooks to practice skills.

ENGL0130   English Essentials   3
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.

ENGL0215   College Reading II   3
This course is designed to develop the effective reading and clear thinking skills that are required to be successful in college today.

ENGL0234   Medical Reading Skills   3
This course is designed to help students who are in or planning to enter health care programs strengthen basic reading comprehension

and vocabulary skills. Students will work on developing efficient study skills. Learning experiences will include use of excerpts from health care textbooks and professional journals to practice reading skills and basic medical terminology.

ENGL1125   Business Writing   3
This course focuses on effective, persuasive communication within and between business organizations, from the perspective of employees and of mangers. Students learn to critically analyze communication strategies, organizational culture and common business texts, such as memos, reports and case studies; they learn to select quality data from primary and secondary sources; and they write and edit letters, memos, reports and studies in situations that simulate the complexities of small companies and global corporations. Students will also gain experience making an oral presentation with accompanying presentation and software slides, work as part of a collaborative team, and recognize the ethical implications of business communication. This course is not a substitute for ENGL1150 Composition I. Meets MnTC Goal 1

ENGL1150   Composition I   3
This course emphasizes the process of writing expository and persuasive essays using effective writing skills and a variety of research techniques. Also included in the course content are critical reading and logical reasoning. Meets MnTC Goal 1 - PREREQUISITES: Student must score an 86 or above on the Accuplacer Sentence Skills assessment OR complete developmental courses through English Essentials AND score a 78 or higher on the Accuplacer Reading Comprehension Assessment OR complete College Reading I or II. Meets MnTC Goal 1

ENGL1200   Technical Writing   3
This course is designed to enhance students' abilities to write technical documents. The content covered will include proposals, research reports, technical manuals, feasibility studies, and process reports. Meets MnTC Goal 1

ENGL1300   Introduction to Creative Writing   3
This course introduces students to the fundamentals of creative writing. The elements of fiction, poetry, nonfiction, and screenwriting are covered. Emphasis will be placed on both the writing process and the end product. Meets MnTC Goal 6

ENGL1355   Critical Reading and Writing   3
How can writing present complex arguments - and require critical thinking skills to develop answers? Is there more than just what is on the surface? How can a student intelligently challenge what is written in a text or even what is offered on the Internet? Students read, compose, analyze, and engage in interesting and rigorous discussions of selected plays and texts. Concepts of audience, purpose, and context are studied and evaluated. Students will learn how to discuss critically, synthesize key components, and provide analysis orally and in writing. This course is not an alternative to Composition 1101. Meets MnTC Goal 1, 2

ENGL1400   American Short Story   3
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 content are critical reading and logical reasoning. Meets MnTC Goal 6

ENGL1550   Introduction to Literature   3
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, characterization, 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

ENGL1570   The Literature of Nature
The Literature of Nature focuses on the understanding and analysis of humanity's relationship to its environment, as revealed through particular genres, such as the short story, essay, diary, and poetry. We will review the major texts in the literature of nature and look at the ethical and philosophical relationship between humans and nature over the centuries, focusing primarily on North America. Meets MnTC Goal 6, 9

ENGL1625   Film Studies   4
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 as well as the investigation of certain aspects of film that set it apart from other literary forms such as technical advances, special effects, camera angles, costuming, cinematography, and lighting. Meets MnTC Goal 6

ENGL1630   Genre Film   1
This course emphasizes the review and analysis of focused genres of films. This will include how a genre reflects the society that produces them and how each genre transcends the limits of its formula. Also included in this course is logical reasoning. Meets MnTC Goal 6

ENGL1650   Greek Mythology   4
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

ENGL1725   Selected Works in Literature   3
This course emphasizes the review and analysis of selected works of literature. Students will become familiar with the conventions, terminology and expectations of a particular genre of literature. In addition, students will research the authors and the historical times in which they lived. There will be an emphasis on reading literature actively, analyzing literature logically and writing about literature critically. Meets MnTC Goal 6

ENGL1750   Fantasy and Science Fiction Literature   3
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. Meets MnTC Goal 6

ENGL1800   Mystery and Detective Literature   3
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 wide variety of 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

ENGL1900   Creative Writing Workshop in Fiction   3
This course emphasizes the process of critical reading and writing fiction using effective writing skills and figurative language. Meets MnTC Goal 6

ENGL2000   Composition II   3
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. Meets MnTC Goal 1

BUSINESS ENTREPRENEUR

ENTR1170   Introduction to Small Business   2
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 other 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.

ENTR1180   Legal Issues for Small Business   3
This course covers all aspects of Business Law for the entrepreneur/small business owner operator. Every business owner needs to understand the legal aspects of his or her business so as to protect not only the business, but the personal assets of the business owner as well. Topics covered in this class include types of business entities and which entity is the best for his or her business, writing contracts, dealing with employees, protecting your business with legal agreements, intellectual property including patents, trademarks, copyrights, business ethics, and creating a code of ethics for your company. In addition, the student will examine the very serious business issues of sexual harassment, workplace violence, discrimination, and be able to create small business polices for each of these areas.

ENTR1475   Successful Marketing Strategies for Small Business #12
Students will be given a complete overview of all aspects of marketing to grow a small business. Specific topics include research, determining a target market, and selecting the right marketing tactics for a specific target customer. The student will be exposed to over 30 marketing tactics and will learn how each of these tactics can impact small business growth. 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 create a complete marketing plan and present that plan to the class.

ENTR1480   Successful Marketing Strategies for Small Business #2   2
Students will be given a complete overview of all aspects of using the web to grow a small business. Specific topics include web research, determining a target market, and selecting the right web marketing tactics for a specific target. Students will learn what it takes to not only build a website, but also how to market the website. The student will be exposed to all major social media platforms and will learn how to use these platforms to grow a small business. The student will be exposed to various case studies and will use these to develop a web marketing strategy for a specific product or service. The student will create a complete web-based marketing plan and present that plan to the class.

ENTR1725   Sales Techniques I   2
This course is ideal for the new business owner especially if they have never sold before. The entire sales process is clearly defined and broken down into seven steps that lead the student through all aspects of sales. Each student learns how to sell his or her own product or service and is given ample opportunity to practice selling his or her own products and services in a safe setting. In addition to learning how to sell, the student will also learn why customers buy and the six decisions a buyer makes before the sales actually closes. The student will be exposed to many actual selling situations and will learn how to identify such things as positive buying signals, negative buying signals, when to attempt a trial close, when to close, and what type of questions to ask at the appropriate time.

ENTR1750   Sales Techniques II   2
The student will learn the importance of developing a CAP (Customer Acquisition Plan) for his or her own business and will create a CAP plan that can be implemented immediately. The student will learn how to negotiate and will be able to practice negotiation skills and techniques in a safe environment. The student will learn the importance of a "win/win" negotiation and will learn the consequences when one party wins, and the other party loses. The student will be required to work on a negotiation team, and the team will be part of a negotiation role play.

ENTR1860   Business Plan Development   3
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, customer 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.

ENTR1920   Capitalizing and Financial Management for Small Business   2
This course will provide the student with the basics of raising money for his or her business, along with gaining a basic understanding of the financial management aspects of any small business. The student will be exposed to the various methods of raising both start-up capital and capital for continuing operations. The methods for raising money presented in the class include bank loans, SBA loans, other debt instruments, venture capital, equity financing, and Federal Grant opportunities. The student will also learn the basic, common-sense aspects of money management including understanding cash flow, basic spreadsheets, and monthly/quarterly and annual financial requirements for tax purposes.

ENERGY TECHNICAL SPECIALIST

ETSA1507   Digital Electronics   3
This is a first course in Digital Electronics. The primary goals of this course are to help individuals acquire a fundamental knowledge of digital electronics. Boolean algebra, digital devices, analog to digital conversion and digital to analog conversion, and how to apply their knowledge and skills through problem solving, simulation and practical projects.

ETSA1511   Fundamentals of AC/DC Electricity I   3
This is a foundational course in direct current electricity. This course is designed for students who have no previous experience with electricity. The primary goals of this course are to help individuals acquire a solid foundation in the theories and laws of direct current (DC) electricity, and to apply their knowledge and skills through problem solving, simulation and practical projects.

ETSA1512   Fundamentals of AC/DC Electricity II   3
This is a fundamental course in alternating current (AC) electricity. This course is designed for students who have a fundamental knowledge and understanding of the theory and laws of direct current (DC) electricity. The primary goals of this course are to help individuals gain the knowledge and skills necessary to troubleshoot and repair single and three phase AC powered systems and equipment. Individuals will apply these skills through problem solving, simulation, and practical projects.

ETSA1515   Intro to Industrial Safety and Health   2
This course is designed to align with the Manufacturing Skill Standards Council's (MSSC) assessment and certification system for Safety. The course curriculum is based upon federally-endorsed national standards for production workers. This course will introduce OSHA standards

relating to personal protective equipment, HAZMAT, tool safety, confined spaces and others.

ETSA1523   Print Reading   3
This is a foundational course in industrial print reading. This course is designed for students who have no previous experience with print reading. The primary goals of this course are to help individuals acquire a solid foundation in print reading, mechanical drafting concept, and machine layout tools to transfer measurements from drawing to stock. Understand piping and instrumentation diagrams (P&ID).

ETSA1531   Process Controls/Instrumentation I   3
This course covers the fundamental principles of process measurement and control equipment and systems. Students will acquire the knowledge required to read and interpret piping and instrument diagrams, understand the terminology and language of control systems, and control strategies. Students will be introduced to a variety of instruments commonly used in industry for measurement and control.

ETSA1541   Mechanical Fundamentals   3
This course teaches students the basic knowledge and skills required to install, and maintain pumps, compressors, hoists, rigging and power transmission systems.

ETSA1552   Basic Metal Joining and Fabrication   2
This course covers basic welding procedures using arc welding and oxy-fuel equipment. One of the major topics of discussion will be safe use of this equipment. Time will be spent in the lab completing welds in various positions with different processes and electrodes. The processes to be covered in this class will be stick welding (SMAW), wire feed (GMAW), Tig (GTAW) Oxy-Acetylene welding, cutting and brazing along with an introduction to other equipment used in welding shops. Students in this course will be non-welding majors where welding may be a useful tool. Course instruction will stress the many situations where it is advisable to have a skilled welder engaged. Knowing your limitations is of the utmost importance.

ETSA2512   Hydraulics   3
This course is an introductory course in hydraulics. This course is designed for students who have no previous experience working with hydraulic systems. The primary goals of this course are to help individuals acquire the knowledge and skills required to install, troubleshoot and maintain hydraulic systems.

ETSA2513   Pneumatics   3
This course is an introductory course in pneumatics. This course is designed for students who have no previous experience working with pneumatic systems. The primary goals of this course are to help individuals acquire the knowledge and skills required to install, troubleshoot and maintain pneumatic systems.

ETSA2516   Mechanical Systems II   4
This course teaches students a higher level of knowledge and skills required to install and maintain pumps, compressors, hoists, rigging and power transmission systems.

ETSA2543   Programmable Logic Controls (PLC) Fundamentals 3
This course covers the knowledge and skills required to install and maintain programmable logic controllers (PLC) in automated control systems. Students will learn to write programs to solve basic control problems, connect sensors and actuators, and configure PLCs.

ETSA2546   Powerplant Technology   4
This course teaches basic powerplant technology, powerplant engineering, and energy conversion offered in departments of mechanical engineering and nuclear engineering. Its main focus is on fossil and nuclear power plants.

ETSA2547   Mechanical Fundamentals for Process Control   3
This course is a comprehensive introduction to the workings of a modern manufacturing facility in the process industry. Key topics include valves, vessels, motors and turbines, heat exchangers, cooling towers, reactors and distillation, extraction and separation systems, and process instrumentation.

EXERCISE AND SPORT SCIENCE

EXER1000   Introduction to Human Performance Studies   3
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
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.

EXER1020   Strength Training   2
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
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
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 Sports   3
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
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
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
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. (Subject to season/semester).

**EXER1225   Introduction to the Spa Industry, Services and
Treatments   2**
This course will introduce students to the history of the spa industry. Students will learn about popular spa treatments and services and explore which services are essential to running an effective and profitable spa business. Students will also examine spa services from different countries and cultures.

EXER1230   Fundamentals of Exercise and Dietary Programming 3
This course will provide students with the knowledge, skills, and attitudes to design basic exercise programs. Programs will focus on the five health-related fitness components and will be structured for general healthy populations and for individuals with special needs. Students will also be introduced to concepts in dietary programming; including, nutritional analyses, nutrient function, total daily energy expenditure, and portion sizes.

EXER1235   Holistic Health   3
This course will provide an introduction to the concepts and theoretical basis of complementary healing practices and focus on providing the student with an overview of methods to enhance overall wellness. This course will include an examination of physical, emotional, spiritual, and mental health and the challenges individuals face in these areas throughout the lifespan.

EXER2020   Personal Training and Exercise Leadership I   2
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
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 and Exercise Leadership II   2
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, plyometric, rehabilitation concerns, and exercise facility design.

EXER2090   Exercise for Special Populations   2
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
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
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.

EXER2130   Foundations of Sport Science   3
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
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   Introduction to Athletic Training   3
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. Prerequisites: None.

EXER2240   Corporate Wellness/Health Promotion   3
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
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.

EXER2260   Recruiting and Retaining Clients   1
This course will provide an introduction to the business side of personal training. Students will learn sales and marketing techniques to use to recruit clients and customer service skills to retain their clients. This course will provide future trainers with the knowledge and skills to maximize their client base and to be effective in meeting the individualized needs of their clients.

EXER2270   Recreation Sports   3
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.

EXER2275   Sport Marketing   3
This course is designed to give students an understanding of marketing theories and practices relative to the sports industry. Specific topics include: public relations, promotions, special events, fundraising, licensing and merchandising, market research, pricing, sales, sponsorship and consumer behavior as it applies to the marketing sport or marketing products through sport.

EXER2280   Health and Aging   3
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.

EXER2285   Sport Facilities Management   3
All sporting events take place in some type of facility. This course examines the principles and skills needed to manage such sports facilities and the events within them servicing schools, colleges, municipalities, private and public athletic clubs, fitness centers and professional sport organizations. This course provides students with information, skills and techniques that will be needed in the planning, development and management of existing sports facilities as well as facility development and maintenance to meet the objectives, goals, and mission of the facility.

EXER2290   Legal Aspects of Sport   3
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.

EXER2295   Social and Ethical Aspects of Sport   3
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.

HEAVY EQUIPMENT MAINTENANCE

HCEM1101   General Shop Mechanics - Introduction   2
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, flaring, soldering, gears, chains, bearings, seals, fuels, lubricants, fasteners, fittings, wires and connectors, belts, pulleys, couplings, and precision measuring instruments.

HCEM1110   Welding and Flame Cutting   2
Students study basic arc and gas welding used in the heavy equipment industry. Theory, safety, and practice will be taught. Cutting and heat bending are also included. Prerequisites: HCEM1101 or instructor's approval

HCEM1132   Heavy Duty Electrical   3
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 Heavy Duty Electronics HCEM1234 through classroom instruction and lab practice.

HCEM1140   Diesel Engine Overhaul I   4
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 Cat, John Deere, Perkins, Case, Ford, and Cummins. 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. Precision measuring is included, along with preventive maintenance and minor repair as well as testing on stationary and mobile engines used in the heavy equipment industry. Safety and troubleshooting are stressed. Prerequisites: HCEM1101

HCEM1161   Specialized Lab   2
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.

HCEM1170   CAT Basic Training I   1
The student will gain an understanding of the Caterpillar engine and product line with basic fundamentals of the diesel engine.

HCEM1234   Heavy Duty Electronics   3
This course teaches students heavy equipment 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
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 Cat, 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
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
This course includes component identification, testing procedures, problem analysis, valve and injection adjustment, pump replacement, and engine tune-up. Troubleshooting is stressed.

HCEM1262   Preventative Maintenance   2
This course covers proper service intervals, the importance of maintenance records, the knowledge of oil classifications, refill capacities, importance of contamination control and proper oil sampling.

HCEM1270   CAT Basic Training II   2
The student will gain an understanding of the Caterpillar engine and product line with basic fundamentals of the diesel engine.

HCEM2115   Transmissions   4
This is a technical course designed to promote understanding of powershift transmissions used in heavy equipment industry. Theory related to powershift 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 HCEM1130 or instructor's approval

HCEM2135   Hydraulics I   3
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 HCEM1130 or instructor's approval

HCEM2145   Hydrostatic Systems   3
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

HCEM2177   Machine Electronics I   2
This course will focus on Machine Electronics. The course will start out with a review of Ohms law and series and parallel electric circuits. Sensors used in modern electronic systems will be covered including switches, PWM sensors, Analog sensors, speed sensors, on/off solenoids, PWM solenoids etc. We will cover electrical schematics, how to read them, find part numbers for electrical components and wiring harnesses and locate pin locations. We will cover electrical connectors and how to repair those including Deutsch, Sure Seal and Tyco/Amp connectors. We will discuss electronic system fault codes and how to troubleshoot them. We will discuss why we need to calibrate machines and do a live machine calibration.

HCEM2225   Track Drive Systems   3
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
This course is designed for students with knowledge of hydraulic flow and pressure.   Students learn National Standard Institute symbols used in fluid power diagrams. A technical study provides students with operational knowledge of computer-controlled multiple hydraulic systems.   Students troubleshoot and diagnose hydraulic system malfunctions. Prerequisites: HCEM1101, HCEM1130, and HCEM2135, or instructor's approval

HCEM2256   Steering Systems   2
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.

HCEM2260   Machine Electronics II   2
This course is a continuation of Machine Electronics I. The student will do more in depth study of sensors and switches covered in Machine Electronics I. There will also be more troubleshooting of the sensors on actual machines in the lab. The student will be studying more in depth electrical schematics and electrical systems. The student will be using the Cummins Insight computer program to troubleshoot Cummins engines. The student will repair electrical systems on several different brands of equipment.

HCEM2265   Differentials   2
This course provides students with operational knowledge of differentials used in the heavy equipment industry, including standard, limited slip, controlled traction, no spin, and locking. The course covers principles of operation, gear ratios, disassembly, assembly, and adjustment procedures.   Prerequisites: HCEM1101 and HCEM2115 or instructor's approval

HCEM2270   CAT Advanced Training III   2
The student will study the operational principals of machine systems such as Air Conditioning, Hydraulics and Powershift Transmissions.

HCEM2280   Climate Control   2
Students will be taught how to perform routine maintenance and troubleshooting procedures in order to identify and repair or replace faulty components within a climate controlled cab in heavy construction equipment. Air-conditioning theory will be discussed. Prerequisites: HCEM1101, HCEM1130, and HCEM2135.

HEAVY DUTY TRUCK

HDTT1100   Truck Technology Fundamentals   4
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 and uses of fasteners, 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.

HDTT1103   Air Brake Systems   6
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
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).

HDTT1109   Fluid Power Systems   2
This course covers the introduction to basic hydraulics and is designed to promote understanding of hydraulic theory and application related to hydraulic systems, tools, and equipment used in heavy duty trucks. The student will study principles of hydraulics, operation, component identification, and preventive maintenance. Also included will be basic information pertaining to heavy truck hydraulic brake components.

HDTT1212   Preventive Maintenance   4
This course covers the importance and proper procedures of preventive maintenance and inspection schedules used for various types of heavy trucks and their applications. Students learn to perform inspections according to the standards of the Department of Transportation (D.O.T.). This course also offers the opportunity to participate in taking the test for certified inspector through the state of Minnesota.

HDTT1215   Suspensions and Steering Systems   4
This course covers the identification, inspection techniques, repair and adjustment procedures, and alignment checks of the components associated with the variety of frames and suspensions common to heavy trucks. Students will be instructed in identifying the various types of truck steering systems and components. The students learn and practice inspection disassembly, reassembly, and alignment procedures. Manual and power steering sectors and pumps are included.

HDTT1218   Electrical Systems   4
This course covers the basic purpose and function of the various truck electrical systems, components, and instruments. Electrical theory, application, and diagnosis using typical test equipment will also be covered.

HDTT1223   Truck A/C   3
The student will gain an understanding of the Caterpillar electrical systems, Caterpillar ET, Caterpillar Fuel systems, Caterpillar Tier 3 engines, and basic hydraulic fundamentals.

HDTT2101   Drive Train I   6
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
This course covers the theory of operation, repair, removal, inspection, and installation of the clutch and drive shafts.

HDTT2107   Diesel Fundamentals   3
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.

HDTT2110   Diesel Fuel Systems   1
This course will cover the basic operation, theory, and understanding of non-electronic diesel fuel systems. Each of the components, their operation, usage, and internal parts will be covered and then tied together to show the student the complete fuel system.

HDTT2213   Diesel Engine Fundamentals   4
This course covers the basic components of the diesel engine as well as their removal, inspection, cleaning, repair, proper measuring, replacement, and/or reuse. Prerequisites: HDTT2107

HDTT2216   Diesel Electronics   3
This course covers the basics of the electronically-controlled engines found in the trucking industry today. The components and their usage, testing, diagnosis, repair, and replacement will be covered. The student will be expected to use a wide variety of diagnostic test equipment. Prerequisites: HDTT1218

HDTT2230   Heavy Duty Truck Industry Training   2
This on-line course covers diesel engine component identification, operation, troubleshooting techniques and procedures, service guidelines, and problem solving procedures used on class 7 and 8 on-highway trucks.

HDTT2970   Heavy Duty Truck Internship
This course is an elective for diploma-seeking students and with the instructor's prior approval, can take the place of HDTT2222. However, this course is required for the A.A.S. Degree student as a three-credit internship. This course will allow the students hands-on experience while working at their place of employment. There is a list of required job tasks which the student will perform on the job thus acquiring valuable work experience.

HEALTH CAREERS

HEAL1005   The Role of the Health Care Technician   2
The Role of the Patient Care Technician course provides students with the knowledge and understanding of the skills and duties required of Patient Care Technicians. Topics covered in this course includes: function of the Health Care Tech in a number of settings including (hospital, clinic, office, mobile service, long term care) and more. Patient confidentiality and legal aspects of the Health Care Technician along with safety and work ethics are discussed. The course covers basic aseptic technique and infection prevention along with preparation of the patient for examination and treatment. Information regarding the National Certification - Certified Patient Care Technician (CPCT) is further discussed related to the AAS degree.

HEAL1030   Emergency Care for Technical Trades   3
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 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.

HEAL1060   Nursing Assistant   5
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 participate in 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. Prerequisites: None. 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
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.

HEAL1101   Anatomy and Physiology   4
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.

HEAL1150   Health Career Mathematics   1
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. Prerequisite: Qualifying scores on ACCUPLACER Arithmetic test.

HEAL1400   Nutrition and Diet Therapy   2
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. Prerequisites: HEAL1000, HEAL1050, AND OFFC1045.

HEAL1502   Medical Terminology   2
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.

HEAL1750   Nutrition and Diet Therapy   3
This course provides a study of basic nutritional concepts. Diet guidelines and menu planning are emphasized using the Dietary Guidelines for Americans and ChooseMyPlate Food Guide. Therapeutic diets are discussed as related to specific disease conditions, with emphasis on management of restricted sodium, modified fat and cholesterol, and diabetic and calorie controlled diets.

HEAL2500   Medical Office Skills for the Health Care Technician   3
This course provides an orientation to the health care delivery system, health records, and basic health information as it applies to the Health Care Technician. A study of the basic concepts of medical record science includes the Medication Record (Pyxis) and basic office technology. The course will provide information and simulation skills in areas such as: the medical record, assembly of records and "soft skills" including customer service and communication skills needed in the healthcare setting. Basic documentation skills related to medical information and core office personnel skills are introduced as they relate to the healthcare profession.

HEAL2700   Capstone   3
This course provides students with the opportunity to function more independently in the simulation/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 simulation setting. A Predictor test will be administered to students allowing then to see how they will do on the State NCLEX Practical Nursing Boards. An instructor will be available to provide guidance and support with identification of areas of need in preparation for the NCLEX test. The Capstone will address job search, Nursing opportunities and a review of the testing process for the MN State Board of Nursing.

HISTORY

HIST1100   History of the United States to 1877   4
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 of America to 1877. Meets MnTC Goal 5

HIST1200   History of the U.S. from 1877 to the Present   4
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

HIST1250   Women in America 1490-Present   3
This course is designed to introduce students to the carried experiences of women in America from pre-contact until the present time. It also explores the various ways gender has shaped society in America. Topics covered include women's involvement in and the impact on women of European settlement, slavery, revolution, nation building, reform, industrialization, depression, war, and second-wave feminism. Using primary and secondary sources, students will explore the racial and ethnic diversity of women in America and how their experiences have changed over time. Meets MnTC Goal 5

HIST1300   World History   4
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 lenses 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, 8

HIST1350   World War II   3
This course is a historical introduction to World War II including analysis of such topics as the causes of war and peace; strategy, tactics, and technologies in the major theaters; political and military leadership; and war crimes. Meets MnTC Goal 5

HIST1400   American Environmental History   3
This 100% on-line lecture 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 industrialization and urban growth on the environment, the emergence of ecology and green politics, and creation of the idea of Nature in American culture. Students will be expected to develop a 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 regulations, relationships between increasing urban growth and increasing environmental concern, and the rise of environmental politics in both local and national settings. Meets MnTC Goal 5, 10

HIST1450   The History of Minnesota   3
This 3 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

HIST1500   History of Western Civilization   3
This course examines the nature of the Western world and how it has shaped the men and women who are its heirs. Students 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 5

HIST1550   America in the Vietnam Era   3
Historical introduction to the Vietnam War and the dramatic social, economic, cultural and political transformations of the Vietnam era. Includes the French Conquest, rise of nationalism, WWII and Cold War containment, secret CIA operations, civil rights movement, Environmental movement, Black Power, counterculture, political murder, anti-war movement, Watergate, Pentagon/VA transgressions, normalizations. Meets MnTC Goal 7, 9

HIST1600   America, the Civil War, and the 19th Century   3
This course is designed to introduce students to the varied experiences of Americans, North and South, during the Civil War Era. It explores the causes and outcomes of the Civil War as well as the events of the war itself. This class also examines how gender shaped the war experience and how the war's legacy affected the decades that followed. Topics covered include slavery, the Market Revolution, abolition, succession,

Civil War battles, life on the home front, contributions by women and African-Americans, Reconstruction, post-war industrialization, and war commemoration. Using primary and secondary sources, students will explore the war from its roots through its aftermath. Meets MnTC Goal 5

HUMANITIES

HUMA1100   Introduction to Humanities   4
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 text, pictures, and ideas. Meets MnTC Goal 6

HUMA1125   The Humanities in Modern Minnesota   3
This course emphasizes eight disciplines that make-up the humanities (literature, art, architecture, philosophy, music, science, religion, and technology) and looks at how Minnesotans are defining and influencing our local and national culture. The course will include analysis of written texts, art, architecture, music, science, performances, and ideas. Meets MnTC Goal 6

INTERIOR DESIGN

IDES1101   Design Fundamentals   4
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 formats. Color will be a focus, include the study of hue, saturation, and intensity, and how color affects people and interior space.

IDES1111   Drafting I   4
This course covers basic skills for generating and reading manual and computer-aided drawings for design and construction. Students will learn industry graphic standards for 2-dimensional drawings, including line quality and drawing nomenclature. Industry standard formatting for various drawing types and sheet sizes will be addressed.

IDES1121   Critical Thinking and Programming   4
This course introduces students to the critical thinking skills used in the design process of interior spaces. Cultural anthropology, anthropometrics, universal design, and ergonomics will be studied. Students will synthesize these factors to generated strategic layouts for interior environments. The initial phases of the design process - programming (gathering project information) and schematic design (develop preliminary concepts) will be explored.

IDES1136   Presentation Techniques I   4
This course covers the process of making visual and verbal presentations. These presentations will be focused on the appropriate industry needs. The visual material will cover sketching and rendering techniques, and the preparation of one-point and two-point perspective drawings. Students will also learn proper techniques and design criteria for board presentation. The verbal component of the class will cover and apply techniques for a successful design presentation.

IDES1207   Residential Studio I   4
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). Sustainable design principles for housing will be introduced, including industry rating systems. Students will investigate furnishings, lighting

and finish material sources in progressively complex residential interior design projects. Design fundamentals, critical thinking skills, presentation techniques and verbal presentation skills will be utilized.

IDES1211   Drafting II   4
This course covers intermediate skills for generating and reading computer-aided drawings for design and construction. Students will generate drawings used throughout the design process, including industry graphic standards and formatting. Computer software and hardware appropriate to entry level job positions will be used.

IDES1218   Commercial Studio I   4
This course covers the basic skills necessary to design both public and private interior spaces in a commercial setting. The interior design process will be applied, with an emphasis on the design development phase (refining the design concept and focusing on design details). Sustainable design principles for commercial spaces will be introduced. Students will investigate furnishings, lighting and finish material sources in progressively complex commercial interior design projects. Design fundamentals, critical thinking skills, presentation techniques, and verbal presentation skills will be utilized.

IDES1231   History of Architecture and Interiors   4
This course covers the history of architecture and interiors, from ancient times through the 21st century, with which an interior designer must be familiar for use in industry applications. Particular focus is placed on the history of furniture during these periods.

IDES1241   Presentation Techniques II   3
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 rendered presentation drawings. Three-dimensional computer modeling processes and digital image editing will be employed. Strategies for effective visual presentations will be integrated into course work, including electronic presentation layouts. Verbal presentation skills will be utilized.

IDES1250   Sustainable Building Systems and Regulations   4
This course covers basic residential and commercial construction methods and materials, building systems, and sustainable design principles, including floors, walls, and ceilings. Interface of mechanical, plumbing, electrical, telecommunications, and environmental systems in buildings will be addressed. Students will study building codes and regulations for application in interior design studio courses.

IDES2107   Color and Light   4
This course continues the study of color principles, theory and psychology, and how color affects people and interior space. Light sources, lighting systems, environmental factors and lighting design methods will also be studied. Students will investigate the dynamics of color and light in interior environments while developing knowledge of lighting techniques and their effects.

IDES2111   Materials and Estimating   4
This course provides students with information that will allow them to establish a systematic approach to selecting materials for interior environments. Students will also create specifications for interior materials, 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.

IDES2137   Commercial Studio II   4
This course covers the interior design of public spaces. The design

process will be applied, with emphasis on the design development phase (refining the design concept and focusing on design details) and the contract documentation phase (construction drawings and specifications). Students will continue to address commercial furnishings, lighting and finish materials. Synthesis of design elements and principles, building systems and regulations, sustainable design principles and product application will be used in progressively complex commercial interior design projects.

IDES2147   Residential Studio II   4
This course covers the basics of residential kitchen and bathroom design. The course uses the guidelines published by the National Kitchen and Bath Association (NKBA) as well as universal design and sustainable design principles. Spatial analysis, material and product selection, construction drawings and product specification are addressed. Students will utilize computer software specific to the residential kitchen and bath industry.

IDES2201   Business Practices   4
This course emphasizes the business practices specific to the interior design industry, including professional ethics, organizational procedures, marketing and sales, and business plan components. The course will also focus on exploring career directions in interior design, including tools and information necessary to obtain an internship position upon the completion of interior design course work.

IDES2211   Senior Studio   5
This is a Capstone course that serves as a culmination of design skills and knowledge from all interior design courses. Students have the opportunity to select a residential, kitchen and bath, or commercial studio project. Students' projects will utilize the design process, which includes programming/strategic planning, schematic design, design development and contract documentation. The outcomes must qualify for portfolio inclusion and will be juried by industry professionals.

IDES2400   Portfolio   2
This is a Capstone course to develop a presentation portfolio utilizing multimedia and printed applications. Students will generate a professional portfolio comprised of project work completed in studio courses within the program. Portfolios will be refined and presented to industry professionals in a Portfolio Review.

IDES2970   INTERNSHIP: Interior Design   4
Upon the satisfactory completion of and/or current enrollment in all IDES coursework, this on-the-job training will provide the interior design student with the opportunity to participate in an internship position within his/her determined area of interiors to strengthen skills in a real design environment. Established design goals from IDES 2100 will be applied in selecting the location and type of design specialty most appropriate to each student. The course is completed after the exterior notebook, hours, and a conference with each student's internship faculty representative is recorded. Each participant is to complete 224 hours of internship work. Prerequisites: Current enrollment in and/or completion of ALL IDES coursework.

INDIVIDUAL STUDIES

INDS1000   Individual Studies Career Exploration   1
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 in their first semester and will result in a comprehensive

plan for degree completion at the college. Prerequisites: Student must be an Individual Studies major. Interdisciplinary Studies

INTS1010   Job Search Skills   1
This course is designed to introduce students to the fundamentals of planning and organizing job search strategies. Emphasis is placed on identification of individual goals, assessment of talents, exploration of career options, analysis of the job market, effective use of employment search tools (e.g. resume, cover letters, interviewing, networking), and management of career pathways.

INFORMATION SYSTEMS TECHNOLOGY CAREERS

ISTC1000   Introduction to Information Systems Management   3
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
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.

ISTC1015   Supporting Business Applications   3
This course prepares IT students to support end users on the Microsoft Office Suite. This course covers basic computer concepts on computer hardware and desktop application software. Students will learn the fundamentals of word processing, database, and spreadsheet and presentation applications. Students will also be introduced to use of the Internet, online collaboration tools, and outlook. The capstone of the course will cover a comprehensive integration with Office applications.

ISTC1025   Computer Basics   1
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.

ISTC1030   Operating Systems I   3
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
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, Profiles, and Policies; Security and Access Controls; Network Protocols; Printing and Faxing; Performance Tuning; Working with the Registry; Booting Process; Fault Tolerance; Troubleshooting. Prerequisites: ISTC1030

ISTC1045   Network Systems I: Introduction to Networking   3
This course introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. The principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for the curriculum. By the end of the course, students will be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes. This is the first course

preparing the student to take the Cisco Certified Network Associate (CCNA) Routing and Switching examination.

ISTC1050   Database Systems   3
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: ISTC1015

ISTC1060   Security I   3
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 Communication   3
This course focuses on the foundations of business communication in the Information Systems Industry. The topics will include developing your business writing skills, correspondence, written and oral business reports, employment communication, as well as topics on the social and ethical implications of Information Systems.

ISTC1205   Web Client Programming   3
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. Prerequisite: ISTC1300.

ISTC1210   Web Server Programming   3
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. Prerequisite: ISTC1300.

ISTC1230   Systems Analysis and Design   3
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. Prerequisite: ISTC1300 or equivalent programming experience.

ISTC1300   Introduction to Programming   3
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
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: ISTC1045 or equivalent networking experience

**ISTC2006   Network Systems II: Routing and Switching
                Essentials   3**
This course describes the architecture, components, and operations of routers and switches in a small network. Students learn how to configure a router and a switch for basic functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with RIPv1, RIPv2, single-area and multi-area OSPF, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks. This is the second course preparing the student to take the Cisco Certified Network Associate (CCNA) Routing and Switching examination. Prerequisite: ISTC1045

ISTC2011   Network Systems III: Scaling Networks   3
This course describes the architecture, components, and operations of routers and switches in a larger and more complex network. Students learn how to configure routers and switches for advanced functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with OSPF, EIGRP, STP, and VTP in both IPv4 and IPv6 networks. Students will also develop the knowledge and skills needed to implement DHCP and DNS operations in a network. This is the third course preparing the student to take the Cisco Certified Network Associate (CCNA) Routing and Switching examination. Prerequisites: ISTC2006

ISTC2016   Network Systems IV: Connecting Networks   3
This course discusses the WAN technologies and network services required by converged applications in a complex network. The course enables students to understand the selection criteria of network devices and WAN technologies to meet network requirements. Students learn how to configure and troubleshoot network devices and resolve common issues with data link protocols. Students will also develop the knowledge and skills needed to implement IPSec and virtual private network (VPN) operations in a complex network. This is the fourth (and final) course preparing the student to take the Cisco Certified Network Associate (CCNA) Routing and Switching examination. Prerequisites: ISTC2011

ISTC2035   Operating Systems III   3
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, disk quotas, basic and dynamic disks, security, and print management. Prerequisites: ISTC1045 and ISTC1033

ISTC2040   Database Management   3
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: ISTC1050.

ISTC2050   Data Structures   3
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.

ISTC2065   Security II: Firewalls   3
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 CCSA Certification outline. Prerequisites: ISTC1060

ISTC2070   Security III: Forensics   3
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
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
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.

ISTC2150   Virtualization, Storage, and Cloud Technologies   3
This course covers the fundamentals of virtualization and network storage technologies. Topics covered in this course include Network Attached Storage, Storage Area Networks, Hypervisors, virtual machines, cloud-based technologies, and additional related technologies. Prerequisites: ISTC1060 and ISTC2006

ISTC2310   Java I   3
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 a preexisting knowledge of programming concepts. Prerequisites: ISTC1300

ISTC2315   Java II   3
This course builds on JAVA I 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

ISTC2320   .NET I   3
This course will introduce the student to the .NET application development environment. The student will learn the .NET tools to create applications that correspond to Windows standards. Topics covered include data controls, reports, multiple-document applications, file processing, elementary database interfacing (ADO.NET), class modules, web applications (ASP.NET), and application installation. The major focus of the course will be on object-oriented topics such as classes, constructors, inheritance and polymorphism used in the context of creating Graphical User Interface (GUI) intense programs. By the end of the course, the student will be able to design and code simple business applications. Prerequisites: ISTC1300 or equivalent programming experience.

ISTC2325   .NET II   3
This course will present advanced topics in .NET application development. Coursework will focus on developing programs in the 3-tier client/server environment. Topics covered include database interfacing using ADO.NET, web applications using ASP.NET, web services, collections, enumerations, interfaces, Crystal Reports, and an introduction into mobile device applications. Prerequisites: ISTC2320 or equivalent .NET programming experience

ISTC2330   Cross-Platform Mobile Application Development   3
This course is designed to introduce students to the concepts of cross-platform application development and to get them started in developing mobile applications. Participants will build mobile applications while learning what makes mobile applications different from desktop applications. All prerequisites must be met to take this course, or have an instructor approval. Prerequisite: ISTC1205

ISTC2970   Internship   3
This course is designed to provide students the opportunity to work within the Information Technology field. Students are expected to observe and apply all of the technical skills learned thus far in their program. Students are also expected to conduct themselves in a manner that would be expected of a full-time employee of the organization they are working for.

LANDSCAPE HORTICULTURE

LAHT1000   Plant Science   2
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
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
This course covers the identification and use of woody plants, including trees, shrubs, and evergreens, in Minnesota landscapes.

LAHT1110   Woody Plant Materials II   2
This course covers the identification and use of woody plants, including trees, shrubs, and evergreens, in Minnesota landscapes.

LAHT1200   Plant Pests   3
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
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
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
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
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
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.

LAHT1600   Landscape Design I   3
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.

LAHT1700   Introduction to Sustainable Food Systems   3
This course explores agricultural systems from early history through current practices and beyond with an emphasis on emergent trends in urban agriculture and local food production. Students will gain an historical perspective in the development of agricultural systems, the socioeconomic influences driving our modern day food systems and its impact on human health and the environment. The emphasis of this course will be on the exploration and investigation of current methodologies in urban agriculture through research of case studies allowing students the opportunity to sharpen research skills while focusing on areas of particular interest.

LAHT1740   Infrastructure for Sustainable Food Systems   2
This course introduces students to the multitude of manmade and natural structures essential to the successful production of food crops including soil building and bed preparation, raised beds, trellising and other means of plant support, water catchment and irrigation systems, structures for season extension and protection from garden predators. Through hands-on exercises and projects, students will learn about the materials, tools and techniques used in their construction and upkeep.

LAHT2000   Herbaceous Plant Materials   2
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.

LAHT2020   Permaculture Based Food Systems Design   2
This course explores Permaculture - based design principles and their application to the small-scale homestead or urban farm. Through research and hands-on design studio exercises students will learn how to design small scale food systems in urban environments that mimic the resiliency and abundance of natural ecosystems. Students will learn techniques for gathering and organizing critical site information in preparation of the site analysis, program development and a successful design solution. Information and skills learned in this course will be synthesized in a final design project for the student's own homestead or urban farm. Prerequisites: Suggested: LAHT 1600

LAHT2040   Sustainable Food Crop Production   3
This course is designed to introduce students to sustainable practices in food crop production including the identification of both annual and perennial species suitable for growing in the upper mid-west, propagation techniques, cultural requirements, harvesting and storage techniques and procedures and regulations involved in bringing food crops to market. Through both lecture and hands-on experiences in the campus greenhouse and farm, students will plan their own garden layout, create crop production calendars, and propagate the crops they plan to grow on the campus farm. Students participating in the on-campus internship will also have the opportunity to see their crop production plans through to harvest and sale.

LAHT2100   Landscape Construction II   3
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
This course covers the fundamentals of landscape irrigation and lighting, especially for residential sites. Subjects include materials, design, and installation.

LAHT2120   Landscape Surveying   1
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.

**LAHT2135   Site Grading and Drainage for Stormwater
                      Management   2**
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.

LAHT2202   Landscape Design II   4
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. Prerequisite: LAHT1600.

LAHT2210   Design Problems   3
This course reinforces design theory concepts through residential, commercial, and public space design problems. Presentation techniques and professional practice are further discussed.

LAHT2235   Sketch-Up for Landscape Designers   2
This course is an introduction to the use of computers in the design and drafting processes. Students will be introduced to the fundamentals of Google Sketch-Up version 8 and Sketch-Up Pro. By the end of this class students will have the ability to draft and plot landscape plans using both programs.

LAHT2315   Greenhouse Operations I   2
This course continues from LAHT1420. Nursery topics include container production, nursery pests, and inventory. Greenhouse topics include introduction to bedding production and chemistry of growth media.

LAHT2325   Greenhouse Operations II   3
This course is a continuation of LAHT2315 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.

LAHT2405   Pesticide Applicator Licensing for Landscape Professionals 2
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

LAHT2500   Landscape Business Management   4
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
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: LAHT1510 or permission of instructor

LAHT2520   Professional Gardening   2
This course is designed to prepare the student to professionally design, install and maintain gardens, container plantings and seasonal displays in residential, commercial and institutional settings. Some of the skills taught include site preparation, plant selection, pest, and weed identification, creating garden maintenance plans, pruning techniques, tool selection and use, and basic business practices.

LAHT2605   Introduction to Sustainable Landscape Practices   2
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 reduced - reuse - recycle this course will introduce students to topics including landscaping with native plants, water resources management (rain gardens and shoreline plantings) green roofs and concepts of Permaculture that can be applied to future landscape projects. This course will consist of classroom lectures and fieldtrips to natural areas and built projects that demonstrate current examples of sustainable landscape practices.

LAHT2620   Water Gardening   1
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 plants, selection and care of fish for a garden, chemicals needed, maintenance, upkeep and over wintering of water gardens.

MATHEMATICS

MATS0200   Basic Mathematics   3
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, percents, and problem solving. All instruction is individualized. A student may enroll in this course for more than one term.

MATS0305   Introduction to Algebra   4
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.

MATS0600   Intermediate Algebra   4
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.

MATS1000   Math for Welders   3
A course for students enrolling in the Welding program. Topics include operations with whole numbers, fractions, decimals and percents; metric system and unit conversions; perimeter, area and volume of regular and composite shapes; angular measurements; bends, stretchouts, economical layout and takeoffs. This course DOES NOT meet any requirements of the Transfer Curriculum: it does not meet the general education requirements for A.A.S. degree students and is not a substitute for general electives.

MATS1205   Math for Electricians   3
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.

MATS1251   Statistics   4
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 nonparametric. Meets MnTC Goal 4

MATS1300   College Algebra   4
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 piece wise-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. Meets MnTC Goal 4

MATS1320   College Trigonometry   2
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. Meets MnTC Goal 4

MATS1350   Math for Liberal Arts   4
A college level course designed to build a student's appreciation of both the beauty and utility of mathematics as it is used in society. 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. Meets MnTC Goal 4

MATS1480   Technical Calculus   2
This course is designed for students in an engineering technology program, who wish to learn the basic concepts and skills of practical calculus. 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: MATS1300 or qualifying score on ACCUPLACER.

MATS1500   Beginning Calculus with Trig   4
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. Meets MnTC Goal 4 Medical Assistant

MDAS1125   Laboratory Skills I   4
This course starts with an introduction to the clinical lab setting, safety and emergency practices, basic math, weights, measurement, quality control and quality assurance. It continues with waived and moderate complexity testing techniques in chemistry, immunology, and microbiology. The students will also learn to maintain the instruments and records for instruments used in this testing and create patient test reports. Prerequisites: Acceptance to the Medical Assistant Program

MDAS1131   Clinical Procedures I   3
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 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.

MDAS1140   Phlebotomy   1
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. Prerequisite: Concurrently enrolled in HEAL1502 and HEAL1101

MDAS1211   Disease/Medical Treatment, Incl. Nutrition   4
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.

MDAS1223   Laboratory Skills II   4
This course builds on Laboratory Skills I using all the skills learned in that course and adding complete urinalysis and more advanced hematology. 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. Prerequisite: MDAS1125

MDAS1231   Clinical Procedures II   3
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. Medical specialties include cardiovascular, ENT, eye, gerontology, GI, male reproductive, neurology, ob/gyn, orthopedics, pediatrics, respiratory, and urinary procedures.

MDAS1250   Fundamentals of Radiographic Imaging   2
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 the 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, the importance of good, safe working habits. 4. Acquaint the students with common radiographic procedures.

MDAS1271   Administrative Procedures   3
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

MDAS1702   Pharmacology and Math for Medical Assistants   4
The objective of this course is to introduce the study of medications and their uses in the ambulatory care setting. Basic mathematics in relation to calculation of dosages will be taught. Medical Assistant students will learn the techniques needed for administration of medication.

MDAS2970   Practicum   6
This course is designed to provide on-the-job experience for the medical assistant student. The student will be assigned to work in a physician's office/clinic for a total of eight weeks, five days a week, eight hours per day, or the equivalent for a total of 276 hours. The student will work under the supervision of medical office personnel doing tasks pertinent to the student's program. Prerequisites: all Diploma requirements must be met; student must be recommended by Instructors

MARKETING COMMUNICATIONS AND SALES

MKTC1000   Principles of Marketing   3
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. DUAL NUMBERED WITH IDES2300.

MKTC1100   Fundamentals of Sales   3
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.   DUAL NUMBERED WITH IDES2310.

MKTC1120   Sales Management   3
Students will gain knowledge to create and maintain effective sales teams by identifying sales manager skills and tasks, selecting sales professionals, and identifying relationship-building and trust-building processes. Students will learn to encourage top sales performance by their sales teams through offering appropriate training, setting performance standards, evaluating performance and conducting effective sales meetings. The course will also cover the importance of motivating one's sales team by creating an effective compensation plan, monitoring motivation levels, and improving substandard sales performance.

MKTC1150   Consumer and Professional Buying Behavior   3
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.

MKTC2000   Advertising Practices and Procedures   3
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.

MKTC2060   Proposal Writing   1
This course is an introduction to the proposal-writing 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
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.

MKTC2310   Public Relations   3
This course explains the nature and uses 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
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 plays 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. Prerequisites: This course should be taken during same semester as VCOM1380.

MKTC2506   Digital Marketing   3
Digital marketing uses marketing strategies through electronic devices such as computers, tablets, and other mobile devices to engage with consumers and other business partners. Internet Marketing is a major component of digital marketing. In this course, we will cover the what, why, and how of major current approaches, including online listening and monitoring, search engine optimization, search ads, email marketing, and participating in social media. The course is designed to offer knowledge on digital trends and teach students how to remain current as technology and devices evolve. In addition, students will receive relevant hands-on experience through assignments and exercises.

MKTC2510   Mobile Marketing   3
Mobile marketing is transforming the way businesses of all sizes interact with their clients. Mobile marketing has become a broad and sophisticated channel. Businesses and brands are quickly adopting strategies using mobile marketing. It is critical that marketers and business managers become familiar with how it is best used to communicate with their audience.

MKTC2550   International Marketing   3
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; marketing-entry strategies; pricing and distribution; sales and communications practices; counter trade; and other current international marketing issues.

MKTC2600   Marketing Research   3
This course examines the processes and techniques used in securing, analyzing and creatively 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.

MKTC2710   Innovations in Marketing   2
This course content includes the latest and most important marketing trends and topics, specifically dealing with emerging technology. Students will hear from industry leaders, explore cutting-edge theories and practices and have an opportunity to explore trends in which they have a particular interest. The course also introduces current marketing, sales, ethics, and technology cases to help develop a student's critical thinking skills about topics they may encounter in their future business professions.

MKTC2713   Social Media Marketing Tools   3
Explore the world of social media marketing and how it is changing the marketing communications field. Examine the impact of new and emerging technologies available to a marketer. Assess the available social media tools to determine which ones make sense for individual businesses. Learn how to implement industry-leader social web tools.

MKTC2716   Social Media Campaigns   3
With the advancements in social media, the area of advertising and promotions has transformed to more of a direct communications through immediate feedback. This course will focus on how to create and implement a social media campaign utilizing the latest in social media tools. Students will understand how to incorporate social media strategies in their overall promotions plan. The course will include search engine optimization (SEO) marketing strategies.

MKTC2815   Business Law   3
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
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.

NANOSCIENCE TECHNOLOGY

NANO1100   Fundamentals of Nanotechnology I   3
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.

NANO1110   Student Research   3
This course will provide introductory experience with nanoscience equipment, investigative research approaches and critical thinking methodologies. The students will work on industry provided problems and examples, traditional nanoscience experiments and independent work. This class will focus on the investigative process, scientific method and project planning. Students will apply and investigate foundational nanotechnology concepts while learning basic equipment operation, safety techniques and basic lab procedures.

NANO1200   Fundamentals of Nanotechnology II   3
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 semiconductor 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.

NANO1210   Computer Simulation   1
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.

NANO2101   Nanoelectronics   3
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, NANO2131, NANO215 and NANO2970.

NANO2111   Nanobiotechnology/Agriculture   3
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.

NANO2121   Nanomaterials   3
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 colloidal suspensions, deposition, evaporation and plating. Properties (hardness, wear resistance, 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.

NANO2131   Manufacturing Quality Assurance   2
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 NANO1210. Concurrent registration in NANO2101, NANO2111, NANO2121, NANO2151 and NANO2970

NANO2140   Interdisciplinary Lab   3
This course will cover the experimental aspects of the accompanying third semester nano courses. Four major lab activities are planned for the course. Each lab will be a series of creation, measurement, assessment, improvement and rework. This circular understanding and assessment/improvement cycle will be included in the detail lab descriptions. Prerequisites: A grade of C or better in the following courses; NANO1100, NANO1200 and NANO1210. Concurrent registration in NANO2101, NANO2111, NANO2121, NANO2151 and NANO2970

NANO2151   Career Planning and Industry Tours   1
This course will prepare students for the Nanoscience Technician Program fourth semester at the University of Minnesota and also for the job market upon graduation. Class discussion and guest speakers will advise students in selection of a specific career path, creation of a resume and portfolio, preparation and practice in job interviewing and options for continuing education. The industry tours will provide students with a broad experience of potential jobs and activities related to nanoscience in a variety of industrial settings. This internship will support career decisions and provide visual application of the concepts studied. Each student will spend a total of approximately 20 hours in various industrial settings, visiting 4 to 6 companies from various industries to complete the total 20 hours. Prerequisites: A grade of C or better in the following courses; NANO1100, NANO1200 and NANO1210. Concurrent registration in NANO2100, NANO2110, NANO2120, NANO2130 and NANO2151.

NANO2970   Industry Internship
Students will participate in observational internship at one or more industry locations. This internship will provide a broad base of application knowledge, which will complement and enhance specific course materials. Industry Task Force members have committed to providing internships.

NURSING ASSISTANT/TRAINED MEDICATION

NATM1500   Nursing Assistant/Trained Medication Aide   8
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 participate in 24 hours of supervised clinical experience in a long term care setting. 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. 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.

NUCLEAR UNIFORM CURRICULUM PROGRAM

NUCP2500   Nuclear Energy Fundamentals   3
This course teaches the nuclear power plant fundamentals of basic Atomic and Nuclear Physics, Heat Transfer and Fluid Flow, and Reactor and Power Plant Chemistry.

NUCP2504   Nuclear Plant Materials and Protection   4
This course teaches the properties of reactor plant materials, radiation protection and detection, and reactor plant protection. Prerequisites: NUCP 2500

NUCP2508   Nuclear Plant Operating Systems   4
This course covers the main operating systems of nuclear power plants having pressurized and boiling water reactors. Prerequisites: NUCP 2504

NUCP2512   Nuclear Plant In-Processing   1
This course is designed to train students on the requirements to get un-escorted access to a Nuclear Plant. Students will go through the in processing procedure at a Nuclear Plant. Students successfully passing this will be granted un-escorted access to the Nuclear Plant. Prerequisites: 30 credits of ETSA

NUCP2516   Nuclear Plant Electrical Job Shadow   1
This course is designed for students to follow an electrical technician around to see all the procedures and processes an Electrical Technician does in the nuclear field. Prerequisites: NUCP 2512

NUCP2520   Nuclear Plant Mechanical Job Shadow   1
This course is designed for students to follow a Mechanical Technician around to see all the procedures and processes a Mechanical Technician does in the nuclear field. Prerequisites: NUCP 2512

PHYSICAL EDUCATION

PHED2520   Intercollegiate Soccer I   1
Soccer is a one-credit Physical Education/General Education elective course at Dakota County Technical College. Students in the course are required to be members of either the Men's or Women's varsity soccer team at the college from the beginning of the fall season (known as training camp) and are required to meet the requirements and achieve a grade. Members must be in good standing in order to receive any credit. The major goal of the course is to develop psychological, physical, technical, athletic skills and abilities required to succeed as a college level athlete in the sport of soccer.

PHED2525   Intercollegiate Soccer II   1
Soccer is a one-credit Physical Education/General Education elective course at Dakota County Technical College. Students in the course are required to be members of either the Men's or Women's varsity soccer team at the college from the beginning of the fall season (known as training camp) and are required to meet the requirements and achieve a grade. Members must be in good standing in order to receive any credit. The major goal of the course is to develop psychological, physical, technical, athletic skills and abilities required to succeed as a college level athlete in the sport of soccer.

PHED2526   Intercollegiate Women's Soccer II   1
Soccer is a one-credit Physical Education/General Education elective course at Dakota County Technical College. Students in the course are required to be members of the Women's varsity soccer team at the college from the beginning of the fall season (known as training camp) and are required to meet the requirements and achieve a grade. Members must be in good standing in order to receive any credit. The major goal of the course is to develop psychological, physical, technical, athletic skills and abilities required to succeed as a college level athlete in the sport of soccer.

PHED2530   Intercollegiate Baseball I   1
Baseball is a one-credit Physical Education/General Education elective course. Students in the course are required to be members of the Dakota County Technical College varsity baseball team. Members are required to meet the requirements to achieve a grade.

PHED2535   Intercollegiate Baseball II   1
Baseball is a one-credit Physical Education/General Education elective course. Students in the course are required to be members of the Dakota County Technical College varsity baseball team. Members are required to meet the requirements to achieve a grade.

PHED2540   Intercollegiate Softball I   1
Softball is a one-credit Physical Education/General Education elective course at Dakota County Technical College. Students in the course are required to be members of the fastpitch softball team at the college for the entire season and are required to meet the requirements and achieve a grade. Members must be in good standing in order to receive any credit. The major goal of the course is to develop psychological, physical, technical, athletic skills and abilities required to succeed as a college level athlete in the sport of softball.

PHED2545   Intercollegiate Softball II   1
Softball is a one-credit Physical Education/General Education elective course at Dakota County Technical College. Students in the course are required to be members of the fastpitch softball team at the college for the entire season and are required to meet the requirements and achieve a grade. Members must be in good standing in order to receive any credit. The major goal of the course is to develop psychological, physical, technical, athletic skills and abilities required to succeed as a college level athlete in the sport of softball.

PHED2560   Intercollegiate Volleyball I   1
Volleyball is a one-credit Physical Education/General Education elective course at Dakota County Technical College. Students in the course are required to be members of the men's varsity volleyball team at the college for the entire season and are required to meet the requirements and achieve a grade. Members must be in good standing in order to receive any credit. The major goal of the course is to develop psychological, physical, technical, athletic skills and abilities required to succeed as a college level athlete in the sport of volleyball.

PHED2565   Intercollegiate Volleyball II   1
Volleyball is a one-credit Physical Education/General Education elective course at Dakota County Technical College. Students in the course are required to be members of the men's varsity volleyball team at the college for the entire season and are required to meet the requirements and achieve a grade. Members must be in good standing in order to receive any credit. The major goal of the course is to develop

psychological, physical, technical, athletic skills and abilities required to succeed as a college level athlete in the sport of volleyball.

PHED2570   Intercollegiate Basketball I   1
Basketball is a one-credit Physical Education/General Education elective course at Dakota County Technical College. Students in the course are required to be members of the men's varsity basketball team at the college for the entire season and are required to meet the requirements and achieve a grade. Members must be in good standing in order to receive any credit. The major goal of the course is to develop psychological, physical, technical, athletic skills and abilities required to succeed as a college level athlete in the sport of basketball.

PHED2575   Intercollegiate Basketball II   1
Basketball is a one-credit Physical Education/General Education elective course at Dakota County Technical College. Students in the course are required to be members of the men's varsity basketball team at the college for the entire season and are required to meet the requirements and achieve a grade. Members must be in good standing in order to receive any credit. The major goal of the course is to develop psychological, physical, technical, athletic skills and abilities required to succeed as a college level athlete in the sport of basketball.

PHILOSOPHY

PHIL1100   Ethics   3
This course is an introduction to the study of ethics. Students will read, discuss, and write about texts from Classical and World philosophy. Emphasis will be placed on the process of criticism and the practical value of the ideas explored. Meets MnTC Goal 9

PHIL1200   Critical Thinking   3
In this course, students will develop skills in argument evaluation, the use of informal logic, and language analysis as they criticize problems found on the World Wide Web, in the workplace, and in other everyday environments. Students will also have an opportunity to explore topics in media literacy and the philosophy of science. Suggested Accuplacer reading cut score over 78. Meets MnTC Goal 2

PHIL1250   Introduction to Logic   3
Students will learn to identify, analyze, and evaluate arguments derived from real-world problems using skills in formal logic. Concepts in informal logic will not be covered. Suggested Accuplacer reading comprehension score over 78. Meets MnTC Goal 4

PHIL1300   Introduction to Philosophy   3
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. Meets MnTC Goal 6, 9

PHIL1350   Medical Ethics   3
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. Suggested Accuplacer reading cut score over 78 and completion of ENGL 1150: Composition I. Meets MnTC Goal 6, 9

PHIL1400   World Religions   3
This course 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 religion, 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 relationship with the world. Meets MnTC Goal 6, 8

PHIL1450   Philosophy of the Arts   2
In this introductory course, students will take a philosophical approach to thinking about painting, photography, film, architecture, music, literature, theater arts, and popular art. Using ideas from a variety of time periods, students will analyze artworks of their own choosing. All students will find this course valuable though it will be of special interest to those in programs such as Applied Visual Arts, Architectural Technology, Graphic Design Technology, Photography, Photographic Imaging Technology, Interior Design, Landscape Horticulture, Multimedia and Web Design. Meets MnTC Goal 2, 6

PHYSICS

PHYS1050   Introduction to Physics   3
This is an introductory course in Physics and its applications. The course is designed for individuals with no previous experience in physics. In this course students will learn basic theory and application of classical physics in everyday life, and how to apply that knowledge through problem solving, simulation, and laboratory experiments. Topics to be covered include: linear and rotational motion, vectors, forces and equilibrium, work and energy, momentum, properties of solids, liquids and gases, heat and thermodynamics, and waves and sound. Meets MnTC Goal 3

PHYS1100   College Physics I   4
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
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

PHLEBOTOMY

PLBT2500   Phlebotomy   6
The DCTC Phlebotomy Technician program prepares students to collect blood specimens from patients for the purpose of laboratory analysis. Students will be provided with the knowledge and skills necessary for careers in outpatient or inpatient facilities. The classroom portion will consist of medical terminology, anatomy and physiology (as applicable to phlebotomy), safety procedures, customer service skills, overview of laboratory processing, blood collection procedures, and hands-on procedures. The program also provides a clinical/ simulation experience during the program. After successful completion of both portions of the program, the student will be eligible to take the Phlebotomy certification exam.

POLITICAL SCIENCE

POLS1000   Introduction to Political Science   3
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. Prerequisites: CPT reading score. Meets MnTC Goal 5

POLS1100   The American Political System   3
This course is a survey of American Government with a focus on political theory and history, the U.S. Constitution, the branches of the federal government, and the concept of civil liberties and rights. Students will be introduced to the party system and political process in the U.S., the impact of public opinion, mass media/Internet, and interest groups. And overview of public policy and state and local government will also be provided. Meets MnTC Goal 5, 9

PSYCHOLOGY

PSYC1105   General Psychology   4
This general psychology course is an introduction and overview of the scientific study of behavior and experience. It includes topics like the history of psychology, research methods, perception, learning, human development, intelligence, motivation, social perception and group behavior, and psychological disorders. Meets MnTC Goal 2

PSYC1200   Abnormal Psychology   3
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. Meets MnTC Goal 5

PSYC1300   Child and Adolescent Psychology   3
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
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, 7

PSYC1400   Adult and Geriatric Psychology   2
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. Prerequisite: Concurrent or prior successful completion of PSYC1100. Meets MnTC Goal 5

PSYC1450   Death and Dying   2
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
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 CERTIFICATION

RRCC1110   Orientation   1
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.

RRCC1120   Introduction to Conductor Service   4
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. Selective admission program - see a counselor about special requirements. Prerequisite: Admission to DCTC railroad conductor program and completion of the one-week orientation (RRCC1110).

RRCC1130   General Code of Operating Rules   4
This is the fourth course in the conductor option for the railroad operations degree program. Conductors must maintain a thorough understanding of the General Code of Operating Rules (GCOR). This course provides an in-depth study of the GCOR. Upon completion of this course, the student should be able to demonstrate abilities to apply the General Code of Operating Rules to safe and efficient train movement and operations. Prerequisites: Admission to the DCTC railroad conductor option and successful completion of RRCC1120 with a minimum grade of "C".

RRCC1140   Mechanical Operations   2
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. Selective admission program - see a counselor about special requirements. Prerequisite: Admission to the DCTC's railroad conductor program and successful completion of RRCC1120 with a grade of "C" or better.

RRCC1150   Conductor Duties   2
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 conductors. This course includes safety and the general rules with which conductors must comply and teaches the techniques and administrative procedures used on the job to perform safely and effectively. Selective admission program - see a counselor about special requirements. Prerequisite: Admission to the DCTC railroad conductor option and successful completion of RRCC1140 with a minimum grade of "C".

**RRCC1160   Utilization of Railroad Equipment and Safety
    Standards   2**
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.

RRCC2970   Railroad Conductor Internship
Upon successful completion of this course, the student will have observed actual operations and be able to apply skills learned in classroom-based instruction to those operations. The student will

observe and perform operations under the supervision of experienced conductor mentors in actual field locations. Prerequisite: Admission to the DCTC railroad conductor option, and successful completion of RRCC1130 with a minimum grade of "C".

SUPERVISORY MANAGEMENT

SMGT1022   Leadership   3
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 an increasingly diverse workforce.

SMGT1160   Fundamentals of Meeting, Conference, and Event Management   2
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
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 to apply the Convention Industry Council meeting profile and accepted practices for request for proposals. Prerequisites: SMGT1160 or advisor approval.

SMGT1162   Special Events Coordination and Management   3
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
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.

SMGT1166   Event Design   3
Meeting and event planners who want to increase production value of their events will find this course important to achieving a well-designed and orchestrated event. 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.

SMGT1171   Strategies for Sales and Closing Success   3
Vendor-Client relationships built on collaboration and mutual reward are the secret success strategy of today's hospitality market. The consumptive sales techniques of yesterday have no traction today. Today's customer is more trained, and technology has maximized their ability to both research and communicate. Litigation has increased. New APEX/ASTM Green Standards will soon require another layer of relationship accompanied by transparent documentation. Effective Vendor-Client relationships begin at first contact, continue through "close", and evolve into the post-sale relationship that multiplies sales. New or experienced sales professionals will benefit from hands-on case studies and simulations that address sales and closing strategies from both Vendor and Client perspectives. The exploration of both perspectives is especially appropriate in today's fluid marketplace in which most professionals will be both Vendor and Client during their career.

SMGT1172   Project Management for Meetings and Events   3
Experienced meeting planners know that project management is one of their most important skills. Traditional project managers pale at the multiplicity of projects that must be managed concurrently for even the smallest of meetings and events. It can seem like magic when the individual projects such as marketing, purchasing, registration, production, sales, housing, etc. operate independently and ultimately come together in the fusion that is a successful meeting or event. That magic is a skill which makes meeting planning a professional celebrated globally and employed by virtually every business model. This course concentrates on the intricacies of the individual projects and their synthesis into the final product - a successful meeting or event. Success doesn't just happen. And, it is not magic. It is the skill of the professional meeting planner. Students in this course practice their skills interactively using case studies and real-life scenarios.

SMGT1173   Life Celebrations   3
Life celebrations take many forms and embrace all cultures; marking birth, coming of age, marriage, death and everything in between. Traditions borne in our native cultures form the fabric that makes us unique and weaves a special mark in our celebrations. Meeting and event planners who specialize in life celebrations such as weddings, bat/bar mitzvahs, naming ceremonies, and other multi-cultural events, as well as managers of cultural fairs, festivals, and parades will benefit from this course. Increase your skill set of cultural norms and traditions and gain insight into resources that will help you research details unique to the host's sect, geographic area, and more.

SMGT1174   Hospitality Law   3
At the core of hospitality law is the need to safeguard guests and internal stakeholders such as owners and employees, while minimizing liability. In an interactive environment, students will explore real-life situations and the application of hospitality law. Students will investigate preventive measures and effective decision making to limit exposure and reduce litigious activity. Study is founded in an ethical, legal, and preventative philosophy, recognizing that today's hospitality manager is the individual who most influences the legal position of the organization through effective decision making. Regulatory and business structure impacts are incorporated into the study of hospitality issues including conferences, employee's guests, crime, risks, and more.

SMGT1175   Sponsorship and Trade Show Management   3
Students new to sponsorship and trade show management will find this course the missing link to jumpstarting their career. Experienced development and event professionals who want to brush up on their skills and bridge their revenue-generating capabilities to the next level will find this course essential. The value of sponsors and exhibitors to the event and to its attendees is a key element of success as well as the bottom line. Integration of sponsors and exhibitors within the event program requires careful crafting with all stakeholder groups in mind. Students explore the symbiotic relationship between the sponsors and

exhibitors as well as the relationship between the host organization and event attendees. Through the extensive case studies, students will determine how management of these two revenue-generating initiatives can add ROI to the sponsoring organization as well as increase attendees to the event itself.

SMGT1215   Negotiation Strategies   3
Explore the challenges of negotiation. Students in this hands-on course will experience the emotions and results of successful and unsuccessful negotiation. Discuss the psychology and consequences of getting your way. Investigate the impact a win-win philosophy has on business relationships and long-term ROI. Practice changing the dialogue of negotiation and discover a blueprint that can be adopted for any negotiation. Then identify and role-play negotiation tactics that will help you to get what you want without saying "NO".

SMGT1245   Introduction to Resort Operations   2
Resorts provide an environment of restoration to their guests. As in other hospitality facilities, the emphasis is always on the guest; however, successful resorts maintain far higher guest service standards than their hotel counterparts. In addition, resorts offer the most fascinating element of all to their guests - escape. Interpretation and delivery of "escape" is both dynamic and evolving. Students in this course will study the components and operation of resorts from a management perspective.

SMGT1260   Managing Teams   3
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.

SMGT1660   Introduction to Hospitality and Tourism   2
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.

SMGT1666   Lodging Operations and Coordination   2
A lodging operation is comprised of many departments that 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
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
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
This course focuses on the management of products and services at hotels, resorts and other venues that hold group meetings. Achieving success of the group client's meeting goals while ensuring the property's operational efficiency and profit, is a core skill in the hospitality industry. Creating a partnership for success between the venue and the group is a significant element of today's competitive business environment.

SMGT1681   Hospitality Marketing and Consumer Behavior   3
This course blends the study of marketing with consumer behavior and provides an applied focus on research and prediction of consumer behavior. Students will explore the power of integrating marketing and public relations techniques to influence consumer behavior.

SMGT1682   Hospitality Procurement and Cost Control   3
Inventory and purchasing controls are important to the success of any lodging property. These controls are necessary for the property to be able to achieve performance goals, while sustaining well supplied operations. This course presents the fundamentals of these important operational principles.

SMGT1683   Hospitality Lodging Issues   2
This survey course explores current issues within the hospitality lodging industry. Dimensional study, research and application are integral curriculum components for second year hospitality lodging students.

SMGT1684   Hospitality Lodging Revenue Management   3
Revenue management key concepts and the selective applications of effective strategies and tactics have become critical for hospitality lodging operations. Exploration of revenue maximization strategies and their operational aspects provides students with a clear overview of this important discipline.

SMGT1685   Hospitality and Tourism Guest Services   2
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.

SMGT1686   Hospitality Food & Beverage Management
**   Fundamentals   2**
Food and Beverage Operations are important to the success of any lodging property. This course prepares hospitality managers by giving a concise overview of the important role that menu planning plays within operations. This course presents fundamentals of the on-premise food service operations, including on-premise catering, as well as, menu design/planning, menu pricing, menu product knowledge, recipe costing, staffing required to implement the menu, current food service trends, basic sanitation skills, and simple internal controls/reporting.

SMGT1687   Hospitality Lodging Issues   3
This survey course explores current issues within the hospitality lodging industry. Dimensional study, research and application are integral curriculum components for second year hospitality lodging and spa & resort management students.

SMGT1695   Hospitality Risk Management   2
Learn to recognize potential risks in the hospitality environment and to prioritize those risks for action. Application of practical strategies to management risks of people, property and goodwill are key elements of success. Learn risk management techniques using case studies and real-life scenarios.

SMGT1875   Training and Developing Employees   3
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.

SMGT2105   Managing Diversity   3
Identify what it takes to become a diversity leader in your organization and community. Learn the complexities of managing in 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.

SOCIOLOGY

SOCY1010   Marriage and the Family   3
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
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, 9

SOCY1150   Race and Gender   2
This course is designed to enable students to obtain a greater understanding of various minority/dominant relations in the United States. Global perspectives will also be addressed. Meets MnTC Goal 5, 7

SOCY1210   Social Issues Changing World   3
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, 8

SOCY1250   Juvenile Delinquency   2
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, 9

SOCY1300   Introduction to Anthropology   3
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 Goal 5, 10

SOCY1400   Introduction to Criminal Justice   3
This course will provide an overview of the philosophy of criminal law and deviance, and of the nature and extent of crime in America. The theory, structure, and operation of each of the principle components of the Criminal Justice System (i.e. police, courts, and corrections) will be examined in detail. Major topics include the historical foundations of our Criminal Justice System, critique of current sociological theories on crime, analysis of impact of legal and social systems on human behavior, rehabilitation, public safety (including homeland security), and citizen responsibility. We will create a learning environment that takes into account all backgrounds and experiences where we can learn from one another. Meets MnTC Goal 5, 9

SPANISH LANGUAGE

SPAN1000   Occupational Spanish   2
This course is designed to help students expand their communications skills by learning enough basic Spanish to communicate in the community at an elementary level. Students will participate in a variety of practical speaking situations. Topics will include daily activities, travel, some business situations and some cultural issues.

SPAN1100   Beginning Spanish I   4
This course is designed as an introduction to basic Spanish language skills, including listening comprehension, reading, speaking and writing. Students are introduced to cultures of the Spanish speaking countries and develop an understanding and sensitivity to diverse groups. Major grammar focus includes regular and irregular verbs in the present tense, adjective agreement, and discussion of family, school, time, weather, numbers and greetings. (This course is presented for the true beginner, but 1 or 2 years of any H.S. language experience has been helpful.) Meets MnTC Goal 8

SPAN1200   Beginning Spanish II   4
This course continues the development of listening, reading, speaking, and writing skills that were introduced in Beginning Spanish 1100. 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: SPAN1100 or its equivalent. (Students who were successful with 2 or 3 years of H.S. Spanish could begin with this class. Those with 4 or more years would be beyond the scope of this class.) Meets MnTC Goal 8

SPEECH

SPEE1015   Fundamentals of Public Speaking   3
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
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, emotional communication, verbal and non-verbal expressions and conflict resolution. Meets MnTC Goal 7

SPEE1030   Intercultural Communications   3
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. Offered fall and spring semesters. Meets MnTC Goal 7, 8

SPEE1042   Small Group Communication   3
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
Includes facial expressions, tones of voice, gestures, eye contact, spatial arrangements, and 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 that what people say. Meets MnTC Goal 1

VISUAL COMMUNICATIONS

VCOM1001   Introduction to Visual Communications   2
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 Vis Com Department.

VCOM1006   Color Theory and Applications   2
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   Introduction to Photoshop   2
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. DUAL NUMBERED COURSE IDES1010.

VCOM1016   Typography and Layout I   3
This course covers the basics of typography and development of page layout in graphic design processes. It provides an overview of the graphic design profession and a historical framework for modern typography and layout practices. Typography classification and identification are covered. Design elements and principles are used as a foundation of any design work. Both screen and print formats are explored. Students work with type and visuals to create layouts and solve design assignments.

VCOM1021   Introduction to Photography   3
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
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
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 communications field.

VCOM1032   Interactive Design Fundamentals   2
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 uses 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.

VCOM1041   Drawing I   3
This course is designed to provide the artistic student the basics of drawing. General methods, mediums and styles are explored. The elements and principles of art and design are applied to various drawing projects. Emphasis is placed on developing technical skill from direct observation of various subjects. Students prepare artwork for presentation and critique.

VCOM1052   Design Drawing   2
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 drawing is explained as well as drawing style and use of color. Dual numbered with IDES1050

VCOM1060   Creative Problem Solving   3
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. DUAL NUMBERED WITH IDES1060.

VCOM1086   Watercolor and Gouache Painting   3
This course is an introduction to painting in watercolor and gouache À common media for both expressive and illustrative art. Color theory is a focus for mixing colors and creating color relationships. A variety of subject matter are explored to practice techniques of watercolor and gouache. An overview of contemporary styles and ideas about these media will be presented. A focus is made on development of the students' conceptual, technical and observational skills. Students develop a working knowledge of the paint mediums, a variety of working surfaces and painting methods and process. Prerequisites: VCOM 1041 or VCOM 1052

VCOM1096   Illustration Fundamentals   2
This course covers the basic concepts in the illustration sector of visual communication. The history and genres of illustration as well as illustration styles and mediums are examined. Projects are assigned to develop illustration skills and uses of various media. Using professional business practices are part of the focus. Visual concept development and communication through illustration are explored through research and application.

VCOM1300   Intro to Adobe Lightroom   2
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.

VCOM1310   Printing Lab I   2
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-Printing Lab II which continues into color enlarging. Prerequisites: None.

VCOM1320   Printing Lab II   2
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: VCOM 1310 required.

VCOM1330   Color Printing Lab I   2
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 VCOM 1320 required.

VCOM1340   Color Printing Lab II   2
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 required.

VCOM1360   Photography Workshop
This course allows the student to choose the types of learning experiences they would like to be involved in. Emphasis is placed on the student and the instructor designing a specific educational goal and clearly defining the intended skills and results to be accomplished. This course will meet the highly creative and unique areas of photography or imaging that are not covered by any other course content. Much of the time the student will be expected to work with minimal supervision. Can

be taken multiple times. Prerequisites: Approval is based on instructor recommendation and a minimum of previous photographic experience.

VCOM1370   North Shore Photography Workshop   1
Course is repeatable up to 3 credits. 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. Prerequisites: VCOM 1020 required.

VCOM1410   Introduction to Illustrator   2
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.

VCOM1422   Print Processes I   2
This graphic design course is designed to give the student a hands-on overview of the print processes. Print theory and terminology, paper knowledge, press and bindery processes will be emphasized. Students will create projects during the process of learning various production.

VCOM1430   Introduction to InDesign   2
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.

VCOM1435   Proofreading Fundamentals   1
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. Prerequisites: None.

VCOM1440   Vinyl Signage   1
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. Prerequisites: None. VCOM1410 Intro to Illustrator is recommended.

VCOM1515   Photo Lighting Techniques   2
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 or concurrent enrollment.

VCOM1523   Film and Darkroom   2
Creating black-and-white prints in a traditional darkroom requires an understanding of the relationship between light, chemical and silver-based materials (photographic film and paper). This class concentrates on the basics of film exposure, film development and the printing of negatives in a traditional 'wet' darkroom. The class will learn to make properly-exposed and -developed negatives. In the printing darkroom, students will work with resin-coated paper, learning to control contrast and density, and exploring techniques such as dodging, burning and solarization. Safe, responsible darkroom habits are a critical part of the

course curriculum. By semester's end, each student will have produced a portfolio of black-and-white prints.

VCOM1565   Color Printing Systems   4
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.

VCOM1570   Portrait Photography   2
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

VCOM1580   Introduction to Digital Imaging   2
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. Students will use and evaluate a minimum of three different imaging software during the course. Prerequisites: VCOM1000 or instructor approved Macintosh experience.

VCOM1720   Photo Journalism   2
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 previsualization, use of traditional and digital cameras, cutline writing, layout, visual storytelling, Associated Press style, and business skills. Prerequisites: None.

VCOM1730   Advanced Photo Lighting Techniques   2
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 portraiture; still-life subjects; and architectural subjects. Portrait and still-life lighting techniques will cover lighting as it relates to composition 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
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 photography 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 special lighting techniques to capture high-quality close-up images. Prerequisites: VCOM1021 required.

VCOM2016   Typography and Layout II   3
This course covers advanced typography and page layout skills. Students develop greater understanding of type as a key element of design. The course concentrates 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 include font and image copyright requirements, and use of type and images for web and motion graphics. Students work toward creating effective marketing and advertising pieces through the practical application of typography and composition. The use of visual concepts is explored. Development and completion of a variety of assignments place emphasis on methods using page layout software. Prerequisites: VCOM1016

VCOM2020   Digital Painting and Drawing   2
In this course students combine traditional drawing and painting skills with computer programs onto the digital canvas. Students have the opportunity to explore the digital possibilities of executing artwork using a graphics tablet. From thumbnail sketching to final artwork, each stage of the creative process and the uses of digital art are addressed. Mixing traditional and digital approaches can expand student's possibilities in image creation. The course promotes an understanding of digital technology in contemporary art and illustration. Prerequisites: VCOM1010. Recommend VCOM1041 or VCOM1052

VCOM2041   Drawing II   3
This course is a continuation of drawing and explores additional concepts, materials and processes. Students develop further skill in various media, figure drawing, color drawing and personal style. Emphasis on the conceptual rather than perceptual aspects of drawing subjects is a focus. Research and investigation of subjects are conducted prior to communicating them in visual form. Instructions focuses on investigating problems in the expression of the drawn image. Students prepare artwork for presentation and critique.

VCOM2050   Pet Photography   1
The continually evolving freelance photography market has produced growing niche areas, including professional-level photography of pets. In this course, the student will learn to photograph pets in studio and environmental settings. Special emphasis will be placed on the importance of good studio lighting and backgrounds. Students will also learn to use on- and off-camera flash units to photograph pets in home or outdoor settings. Each student will photograph a minimum of 5 pet sessions.

VCOM2086   Acrylic and Mixed Media Painting   3
This course is an introduction to painting in acrylic as well as mixed media painting with an approach toward both expressive and illustrative art. Color theory is a focus for mixing colors and creating color relationships. A variety of subject matter are explored to practice acrylic painting techniques. An overview of contemporary styles and ideas using acrylic and mixed media is presented. A focus is made on development of the students' conceptual, technical and observational skills. Students develop a working knowledge of the paint mediums, a variety of working surfaces and painting methods and process. Prerequisites: VCOM1086

VCOM2096   Story, Sequence and Animation Art   3
This course is a study of the methods and techniques of sequential narration within the contemporary art forms of children's books, comics, graphic novels and animation. In the process, students are exposed to character development through figure drawing studies. A variety of media possibilities are presented while exploring the dynamics of pacing, framing, and the interaction of text and image. Creating the illusion of motion in still artwork as well as producing frames for moving pictures are included in the focus. Emphasis is placed on idea generation, concept design, visual development, and storyboarding. Prerequisites: VCOM1041 or VCOM1052. Recommend VCOM2041

VCOM2097   Advertising and Editorial Illustration   3
The broad impact of advertising and editorial art ranges from magazines

to posters to CD cover art and products and beyond. This course addresses illustrative art problems in various forms in the advertising and editorial sectors of visual communication. Developing concepts and problem solving are encouraged. A variety of materials and techniques are explored. This is an advanced level course and previous drawing, painting and visual design training are highly recommended. Prerequisites: VCOM1041 OR VCOM1052. Recommended: VCOM2041, VCOM1086 or VCOM2086

VCOM2400   Advanced Photoshop   3
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 this software will be introduced during this class. Emphasis will be placed on using this software to produce commercially acceptable photographs and advertisements, as well as hard copy outputs. Prerequisites: VCOM1010.

VCOM2415   Advanced Electronic Publishing   3
Students will create advanced electronic publishing projects using either PageMaker or QuarkXPress. Emphasis will be on advanced publishing techniques, use of color, color separations, and design of portfolio quality projects. Prerequisites: VCOM1400 or VCOM1430

VCOM2420   Advanced Computer Illustration   3
This course is a project driven course. Students will use Intro Illustrator to create a variety of portfolio quality drawings. Prerequisites: VCOM1410.

VCOM2422   Print Processes II   3
This graphic design course is designed to give the student a hands-on overview of the print process. Print theory and terminology, paper knowledge, hands-on press operation, plate making and bindery processes will be emphasized. Students will create and print projects during the process of learning press and pressroom operation.

VCOM2423   Print Management   2
Students learn the customer service and sales side of the print industry. Topics include: job costing, estimating, customer service, print buying, and print distribution (including postal regulations.) Prerequisites: VCOM1422.

VCOM2424   Photography for Non-Profits   2
This service-learning class offers the training and experience needed to provide professional location and studio photography to nonprofits with restricted budgets. The class will provide a variety of organizations (i.e., arts, health, human services, etc.) with pictures for use in web sites, brochures, posters or other publicity materials. Each student will devote a minimum of 30 hours to classroom projects and shooting sessions.

VCOM2426   Expert Techniques in Photoshop and Illustrator   2
This class continues the students' development and work in Advanced Photoshop and Advanced Illustrator. Projects will evolve from exercises where they will learn a variety of advanced techniques that will be incorporated into the finished work. They will gain greater facility with the software and create portfolio quality projects. Prerequisites: VCOM2400 and VCOM2420

VCOM2510   Commercial Photography   2
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 others. The use of studio lighting will be discussed and used during these projects as well as the use of natural lighting when photographing outdoor commercial projects. Prerequisites: VCOM 1021, VCOM 1515, and VCOM 1570

VCOM2520   Digital Photography   2
In this course the student will apply the fundamentals of photography,

lighting, and digital imaging in order to produce professional quality digital photographs. Students will apply the principals of digital photographic "workflow" to projects which will include studio portraits, still life, and outdoor architectural projects. Students will apply techniques of working with layouts, file management, and color management to produce images both for print and web production.

VCOM2525   Event Photography   2
In this course the student will learn about the viable niche of Event Photography by working on real life event photography projects. This apprentice style learning course will allow students at all levels to take part in real event photography project from concept to planning, from capture to download, and from editing to delivery of a finished product. Skills from other camera courses will be reinforced, but no prior experience is necessary.

VCOM2535   Wedding Photography   2
This course allows both novice and experienced wedding photographers to improve their skills by working together on actual Wedding Photography Projects. The course integrates nearly all of the courses in the photography program to include lighting, digital images, the business of photography and workflow methods. Prerequisites: VCOM1021 and VCOM1515

VCOM2540   The Business of Photography   2
Professional photographers who use the craft to pay their bills will tell you 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 students about the skills, tools, and resources necessary to succeed in business.

VCOM2551   Digital Studio Workflow I   2
Digital photography is rapidly becoming the media of choice. Photographers 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 involved in using digital equipment, and investigate the creative options available to the professional digital photographer. Prerequisites: VCOM1010, or instructor approval.

VCOM2552   Digital Studio Workflow II   2
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, and VCOM2551

VCOM2560   Photography on the Internet   1
This course will help the student understand the connection between photography and the Internet (World Wide Web). As photography changes with the advent of digital imaging, new marketing display methods introduced, and 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 as use on-line photographic printing services. Prerequisites: VCOM1001, VCOM1010, VCOM1021 and VCOM 1580.

VCOM2565   Crime Scene/Forensic Photography   2
This course will teach student to apply the basics of 35mm camera operation to the process and procedures of various crime scene and forensic photography investigations including, but not limited to: arson cases, auto accidents and auto-related death, break-ins, domestic abuse,

personal injuries, homicides. Prerequisites: VCOM1020 and VCOM1515 required.

VCOM2575   Medical Photography   2
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: VCOM1020 and VCOM1515 required.

VCOM2581   Photo Portfolio   2
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.

VCOM2605   Audio/Video for Presentations   3
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 storyboards. 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.

VCOM2610   Digital Animation   2
Introduces animation tools such as Flash and builds skills needed to create two-dimensional digital animations and web interfaces. Students work with different animation techniques and interface designs to create finished web accessible animations.

VCOM2620   Digital Delivery   3
Print is changing. Even with the pervasive digital infrastructure there is a basic need for print in our society. However, it is clear that digital media and print will live side by side and the traditional printing business will morph into more than just a print production manufacturer. Digital Delivery will focus on the use of software to create and prepare dynamically generated files for digital output. Use of the design process and layout principles along with production skills will be stressed. Students will explore both the technical issues involved in creating digital files along with the interface of variable data production. We will cover the activities and processes of the print workflow, along with the capabilities of variable-data and print-on-demand. Prerequisites: VCOM1422, VCOM1430

VCOM2650   Multimedia Project Management   2
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. V

COM2660   3D Modeling and Animation   3
This course is designed to give the skills needed to make basic computer generated 3D models and animations for use in multimedia, web and print projects. Software will be used to create, animate and render 3-D models. Textures, color and lighting will be applied to objects and environments. Emphasis is placed on tool and menu use to create models and animations. Prerequisites: VCOM1010, VCOM1410

VCOM2675   Designing for Mobile Apps   2
This course explores the basics of interface and interactive design for common mobile devices and tablets. It focuses on the use of designer friendly software to create and distribute simple mobile apps. Use of

the design process and layout principles are stressed. Prerequisites: VCOM1032 or equivalent HTML and CSS experience

VCOM2680   Introduction to Flash   2
Students will be introduced to Macromedia's Flash, an object based 2D animation program. Flash is used to create animated segments for use in web pages or multimedia. Basic animation, symbols - unique to Flash, timing, storyboarding, and design and software tools will be emphasized. Other Flash tools that are introduced in this course include: masks, motion guides and buttons. ActionScript language code is introduced. VCOM2700 Advanced Flash, follows this course. Prerequisites: VCOM1010, VCOM1410

VCOM2685   Web Page Construction I   2
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 and VCOM1410.

VCOM2690   Web Page Construction II   3
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.

VCOM2694   Advanced Multimedia Production   2
This course is project intensive. Students will use skills learned in Intro to Flash to create portfolio quality multimedia production. Emphasis will be placed on use of user interface design, scripting language, logical information flow, story boarding, and quality graphic design.

VCOM2701   Advanced Flash Scripting   3
This course is designed to give students additional instruction and experience in Macromedia's 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.

VCOM2705   JavaScript for Designers   2
This course explores the basics of JavaScript code and how to write it. Use of JQuery libraries and Dreamweaver snippets are explored. Students use Dreamweaver to incorporate JavaScript into designed web pages. Previous knowledge of HTML and CSS is required. Prerequisites: VCOM1032 or equivalent HTML and CSS experience

VCOM2710   Web Page Construction III   3
Introduces web content management software and use of templates and plugins to create websites.. Emphasis is on tools for creating feature rich websites without ground up programming. Other topics include using template web marketing, shopping cart/e-commerce options and HTML 5 and CSS3. Prerequisites: VCOM1032, VCOM2685, VCOM2690

VCOM2721   Portfolio for Graphic Design   2
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 for inclusion in the portfolio will be created in pixel based, object based, and layout.

VCOM2722   Portfolio for Multimedia and Web Development   2
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.

VCOM2724   Portfolio for Applied Visual Arts   2
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.

VCOM2730   Career Research Skills   1
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 or VCOM2721 or VCOM2722

VCOM2800   Advanced 3D Modeling and Animation   4
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 places 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: VCOM1000, VCOM1010, VCOM1410, and VCOM2660 required.

VCOM2810   3D Modeling and Animation Capstone   5
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: VCOM1000, VCOM1010, VCOM1410, VCOM2660, and VCOM2800 required (with instructor approval may be taken concurrently with VCOM2800).

VCOM2825   Visual Art Career Preparation   3
In this capstone experience students refine and develop artwork for a personal and professional body of work in preparation for graduating and seeking work in visual art fields. This includes career research and development of a portfolio, web representation, resume and self-promotional materials. The legal aspects of protecting copyright and image use in online galleries and portfolios are explored. Students conduct informational interviews and develop networking skills. These skills will enable them to better market, manage and promote themselves and their art for positions in-house for a company or starting their own freelance business. Prerequisites: Must be taken only in final semester with majority of degree coursework complete.

VCOM2970   INTERNSHIP: Visual Communications
Internship is a supervised work experience to apply classroom and simulated knowledge in a real on-the-job setting. This learning alternative will give students the opportunity to develop speed and skills and gain experiential knowledge and attitudes in their specialty areas. Specific student outcomes will be prearranged and assessed with the internship provider. A designated faculty member will monitor student progress on a regular basis. Internship s can have a varied credit values and needs prior approval from the supervising instructor. Prerequisites: Instructor approval.

WELDING TECHNOLOGY

WELD1101   Welding Safety and Theory I   3
This course will give the student a basic introduction to welding and cover basic safety for the welding trade. Theory for Shielded Metal, Gas Metal, Flux Cored, and Gas Tungsten Arc Welding Processes. Theory for Oxygen Fuel, Plasma Arc, and Carbon Arc Cutting/Gouging processes. Also covered is visual inspection and quality standards.

WELD1111   Shield Metal Arc Welding I   3
This course will develop the skills necessary for the Shielded Metal Arc Welding process using E7018 and E6010 electrodes in the flat and horizontal positions. Students will receive instruction in equipment, technique, and will have opportunity to practice skill development with the Shielded Metal Arc Welding process. The skills necessary for Oxygen Fuel Cutting, manual and mechanized. This course must be taken at the same time as WELD1101.

WELD1120   Gas Metal Arc Welding I   2
Students will receive instruction in equipment, technique, and will have opportunity to practice skill development with the Gas Metal Arc Welding Short Circuiting and Spray Arc transfer on mild steel plate and sheet metal. Flat position and horizontal welding will be emphasized. The goal is to be able to perform welds in the flat and horizontal position to an industry acceptable level of quality for entry-level employment. Practice to achieve the required skill level is conducted by supervised instruction. This course must be taken at the same time as WELD1101.

WELD1130   Flux Cored Arc Welding I   2
Students will receive instruction in equipment, technique, and will have opportunity to practice skill development with the Flux Cored Arc Welding on mild steel plate. Use of three types of cored electrodes, gas-shielded, self-shielded, and metal core. The goal is to be able to perform welds in the flat and horizontal position to an industry acceptable level of quality for employment. Practice to achieve the required skill level is conducted by supervised instruction. This course must be taken at the same time as WELD1101.

WELD1140   Gas Tungsten Arc Welding I   3
This course will develop the skills necessary for the Gas Tungsten Arc Welding process on mild steel sheet and plate in the flat and horizontal positions. The skills necessary for manual Plasma Arc Cutting. This course must be taken at the same time as WELD1101.

WELD1150   Print Reading I   3
In this course the student will learn how to interpret drawings related to the manufacture of metal products from simple single part drawings to more complex multipart drawings. Welding symbols, drawing symbols, material specifications, and basic fabrication methods will be studied also.

WELD1200   Print Reading II   3
After proper instruction the student will demonstrate use of the American Welding Society "Welding Symbol" to industry standards. The student will have instruction on proper interpretation of joint design of welding symbols. After proper instruction the student will have working knowledge of prints and drawings. Instruction will be given to the student on proper forming and cutting practices. Classification of base materials and wire will be emphasized. Prerequisites: WELD1150

WELD1210   Welding Safety and Theory II   3
Upon proper instruction the student will have an understanding of metallurgy as it pertains to base metal and its alloying elements. The student will have an understanding of safety practices associated within the welding industry. Upon proper instruction the student will have knowledge of advanced welding processes and cutting technology. Students will interpret code specifications with testing and inspection gauges. Prerequisites: WELD1101

WELD1230   Shield Metal Arc Welding II   3
Upon proper instruction the student will perform out of position weldments using the two basic code rods of industry, 6010 and 7018. Upon proper instruction the student will perform a certification plate to American Welding Society D1.1structural code. Proper safety and cutting practices will be emphasized. The student will practice control

factors until they have mastered essential elements of visual inspection criteria. Prerequisites: WELD1111, and must be taken at the same time as WELD1210

WELD1240   Gas Metal Arc Welding II   2
Students will receive instruction in equipment operation and technique, and will have opportunity to practice skill development with the Gas Metal Arc Welding Short Circuiting, Spray Arc transfer and pulse spray metal transfer on mild steel and aluminum, plate and sheet. Flat, horizontal, and vertical welding position will be emphasized.   The goal is to be able to perform welds in the flat, horizontal and vertical position to an industry acceptable level of quality for entry-level employment. Practice to achieve the required skill level is conducted by supervised instruction. Prerequisites: WELD1120 and must be taken at same time as WELD1210

WELD1250   Flux Cored Arc Welding II2
Students will receive instruction in equipment, technique, and will have opportunity to practice skill development with the Flux Cored Arc Welding on mild steel plate. Use of two types of cored electrodes, gas-shielded and self-shielded.   The goal is to be able to perform welds in the vertical and overhead positions to an industry acceptable level of quality for employment. Practice to achieve the required skill level is conducted by supervised instruction. Prerequisites: WELD1130 and must be taken at same time as WELD1210

WELD1260   Gas Tungsten Arc Welding II   3
This course will develop the skills necessary for the Gas Tungsten Arc Welding process on aluminum and stainless steel sheet and plate in the flat, horizontal, and vertical up positions. The skills necessary for advanced safety procedures and in-shop cutting and forming will also be covered. Prerequisites: WELD1140 and must be taken at the same time as WELD1210

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