

WELCOME



Ronald E. Thomas, Ph.D. President, Dakota County Technical College

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

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

Best wishes for your future!

CONNECT WITH US



Online: dctc.edu



Facebook: facebook.com/dakotatech



Twitter: twitter.com/dctc



E-mail: admissions@dctc.edu



Visit: Tuesday Campus Visits Every Tuesday, 12:45 - 2:30 p.m.



Contact: 1300 145th Street E. Rosemount, MN 55068

651-423-8000

Real Education. Real Results.

CELEBRATE WITH US



DCTC'S 40[™] ANNIVERSARY

COLLEGE SHOWCASE

Wednesday, April 1, 2010 5 - 8 p.m.

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

SEPTEMBERFEST

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

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



Mission

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

Vision

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

Philosophy

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

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Understanding this Guide

This catalog contains sample course sequences for completing degrees, diplomas and certificates at Dakota County Technical College (DCTC). Please note that the sequence samples shown are only one of many options.

You should meet with an instructor or academic advisor to discuss a sequence that fits your schedule and meets your educational goals. For the most up-to-date information, visit deteedu.

Accreditation

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

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

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

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

ADMISSIONS

651-423-8000 | ADMISSIONS@DCTC.EDU

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

New Student Admission

Students pursuing a degree, diploma, or certificate <u>must</u> complete the following admissions requirements:

- Submit a DCTC Application
 Available in this catalog, at DCTC, or online at dctc.edu/go/onlineapp
- 2. Pay a \$20 non-refundable application fee
 Online payment is accepted with a credit
 card at dctc.edu/go/admissions
- Complete the ACCUPLACER Placement Test For a testing schedule, call 651-423-8000 or visit dctc.edu/go/accuplacer
- 4. Complete an immunization form Available at DCTC or online at dctc.edu/go/admissions

5. Submit transcripts

If you have graduated from high school within the last five years, you must submit high school transcripts. GED recipients must provide a copy of their GED certificate. Official college transcripts are required from students with previous degrees or when transferring in credits. Official non-MnSCU college transcripts must be sent directly from the previous college in a sealed envelope.

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

Transfer Student Admission

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

Only those courses that are applicable to a student's chosen degree, certificate, or major will be considered for transfer.

Transfer credits need to have a grade of C- or higher and be from a college with a regional accreditation of colleges and schools (North Central, Middle States, etc.) in order to be considered for transfer.

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

Returning Student Admission

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

International Student Admission

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

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

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

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

International Student Admission Deadline

June 1 for Fall Semester November 1 for Spring Semester

Post-Secondary Enrollment Option (PSEO) Eligibility and Admission

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

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

PSEO Student Admission Deadline

June 1 for Fall Semester
December 1 for Spring Semester

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

ACCUPLACER Placement Test

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

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

Selection of Major

It is recommended that students declare a major upon enrollment at the college. Majors may be changed, depending upon factors such as student interest and success. Before completing an application to attend DCTC, new students may meet with an advisor to determine their major.

Undeclared Major

Students not pursuing a degree, diploma, or certificate do not need to complete the admissions process if they do not intend to:

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

Residency

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

Credits

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

Degrees, Diplomas, and Certificates

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

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

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

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

REGISTRATION

651-423-8038 | REGISTRATION@DCTC.EDU

Full-Time and/or Degree Seeking Students

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

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

Part-Time or Non-Degree Seeking Students

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

Change of Registration (Drop, Add, Withdrawal)

Student are responsible for their registration, drop, add and withdrawal from courses. Students are also responsible for the tuition and fees assessed as a result of their registration-related transactions.

Transfer from DCTC

DCTC has transfer agreements with several colleges and universities. For more information on transferring your degree from DCTC, visit dctc.edu/go/transferout.

TUITION & FEES

651-423-8045 | TUITION@DCTC.EDU

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

Reciprocity

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

Senior Citizens

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

FINANCIAL AID & SCHOLARSHIPS

651-423-8299 | FINAID@DCTC.EDU

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

Applying for Financial Aid

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

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

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

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

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

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

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

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

Child Care Assistance: A limited amount of funds are available on a first-come, first-serve basis through the Post-Secondary Child Care Grant Program for students who have children needing child care.

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Other Funding Sources

Veteran and Military Benefits: Veterans and military personnel planning to use their education benefits should contact the Office of Scholarships and Financial Aid. All students must apply through this office for certification of eligibility by the college. All students with questions regarding veteran or military benefits should contact Kerry Lurken, at 651-423-8278 or e-mail Kerry.Lurken@dctc.edu

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

COLLEGE SERVICES

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

Bookstore

651-423-8486 | BOOKSTORE@DCTC.EDU

Students may purchase books and supplies in the DCTC Bookstore and online. Visit the bookstore web site at dctcbookstore.com for store hours.

Café

651-423-8466

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

Career Services

651-423-8450

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

Counseling

651-423-8492

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

Disability Services

651-423-8469

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

Health Services

651-423-8371

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

Housing

651-423-8000

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

Computer Lab (Instructional Technology Center)

651-423-8657

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

Library

651-423-8345

DCTC's library offers students a wide variety of informational resources. The library is located on the west side of DCTC's campus, on the first floor. For more information, visit dctclibrary.dctc.edu.

Learning Center

651-423-8420

The Learning Center provides tutoring and other learning support services to help students achieve success in their technical and occupational training program. For more information, visit dctc.edu/go/learningcenter or stop by Room 2-141.

TRiO/Student Support Services

651-423-8420

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

STUDENT LIFE

651-423-8330 | STUDENTLIFE@DCTC.EDU

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

Alumni Association

651-423-8249 | ALUMNI@DCTC.EDU

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

Student Senate

651-423-8330 | STUSENATE@DCTC.EDU

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

Blue Knights Athletics

651-423-8330 | ATHLETICS@DCTC.EDU

DCTC is a member of the National Junior College Athletic Association (NJCAA), the Minnesota College Athletic Conference (MCAC) Division III, and the Iowa Community College Conference (ICCAC) Division I. The college has varsity teams in men's soccer, women's soccer, fastpitch softball and baseball.

Clubs and Organizations

DCTC has a variety of program and special interest clubs and organizations where students can get involved and be active outside of the classroom. We currently offer:

- Multicultural Student Leadership Association (MSLA)
- Phi Theta Kappa International Honor Society
- SkillsUSA Minnesota
- American Marketing Association (AMA) Club
- Veterans Club
- Automotive Club
- Chess Club
- Coral Reef Ecology Club
- Landscape Horticulture Club

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

Wellness Center

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

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

Veterans Resource Center

651-423-8627 | VETERANS@DCTC.EDU

Within our Student Life Center we have a Veterans Resource Center which is open to military members and their families. The Center has information on educational benefits, and other programs that may be of interest. Stop by or give us a call.

Business & Information Systems



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INFORMATION IS EVERYTHING

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

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

TRAITS OF THE TRADE

Professionals with a gift for mastering information are:

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

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

Contact Us

FACULTY

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"Information technology and business are becoming inextricably interwoven. I don't think anybody can talk meaningfully about one without talking about the other."

— Bill Gates —

ACCOUNTING

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

Major Description

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

Work Environment

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

Potential Job Titles

- Account Administrator
- Budget Accountant
- Business Analyst
- · Financial Adviser
- · Payroll Accountant
- Tax Accountant

Salary Data

Average Wage: \$30.90Top Earners: \$46.04



Accountant A.A.S. Degree	r.
Accountant Diploma64 c	r.
Accounting Clerk Diploma	r.

ACCOUNTANT - A.A.S. DEGREE

First Year - First Semester

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

First Year - Second Semester

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

Second Year - First Semester

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

Second Year - Second Semester

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

TOTAL PROGRAM REQUIREMENTS 72

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

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

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

ACCOUNTANT - DIPLOMA

First Year - First Semester

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

First Year - Second Semester

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

Second Year - First Semester

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

Second Year - Second Semester

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

TOTAL PROGRAM REQUIREMENTS 64

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

ACCOUNTING CLERK - DIPLOMA

First Year - First Semester

	Technical Elective*	2
COML1400	Introduction to Computers	3
ACCT1106	Accounting Mathematics	3
ACCT1100	Business Law and Ethics	3
ACCT1000	Principles of Accounting I	4

First Year - Second Semester

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

TOTAL PROGRAM REQUIREMENTS 32

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

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

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

INFORMATION SYSTEMS MANAGEMENT

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

Major Description

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

Work Environment

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

Potential Job Titles

- Computer Network Support Technician
- · Network Administrator, IT
- System Administrator, Computer/Network
- Information Technology Specialist
- Systems Administrator
- Programmer Analyst

Salary Data (Payscale.com)

Information Technology Specialist

• Salary Range: \$34,902-\$51,900/year

Programmer Analyst

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



INFORMATION SYSTEMS MANAGEMENT - A.A.S. DEGREE

First Year - First Semester

	Total Credits	15
SPEE1020	Interpersonal Communication	3
COML1400	Introduction to Computers	3
ISTC1040	Network Systems I	3
ISTC1030	Operating Systems I	3
ISTC1100	Business Communications	3

First Year - Second Semester

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

Second Year - First Semester

	Total Credits	18
	General Education Elective (MnTC Goal 3 o	r 4)**6
ISTC2040	Database Management	3
ISTC2035	Operating System III	3
ISTC1400	Wireless Systems	3
ISTC1300	Introduction to Programming	3

Second Year - Second Semester

	Total Credits	20
	General Education Elective**	5
ISTC2140	Digital Convergence	3
ISTC2120	Financial Accounting for Information Systems	3
ISTC2100	Project Management	3
ISTC2065	Security II: Firewalls	3
ISTC1230	System Analysis and Design	3

TOTAL PROGRAM REQUIREMENTS 71

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

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

INFORMATION SYSTEMS MANAGEMENT - DIPLOMA

First Year - First Semester

	Total Credits	15
SPEE1020	Interpersonal Communication	3
COML1400	Introduction to Computers	3
ISTC1040	Network Systems I	3
ISTC1030	Operating Systems I	3
ISTC1100	Business Communications	3

First Year - Second Semester

Security I	3
	_
Database Systems	3
Operating Systems II	3
Microcomputer Maintenance	3
Introduction to Information Systems Mgmt.	3
	Microcomputer Maintenance Operating Systems II Database Systems

Second Year - First Semester

perating System III atabase Management omposition I	3 3
9 7	3
perating System III	3
	_
ireless Systems	3
roduction to Programming	3
	troduction to Programming ireless Systems

Second Year - Second Semester

ital Convergence	3
ancial Accounting for Information Systems	3
ject Management	3
urity II: Firewalls	3
tem Analysis and Design	3
j	urity II: Firewalls

TOTAL PROGRAM REQUIREMENTS 60

This is a sample course sequence resulting in a diploma.

Please consult your program advisor regarding your academic plans.

NETWORKING ADMINISTRATION

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

Major Description

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

Work Environment

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

Potential Job Titles

- Network Administrator
- · Network Manager
- · Network Security Administrator
- · Network Services Supervisor
- · Network Specialist
- · Network Systems Coordinator

Salary Data

Average Wage: \$36.11/hourTop Earners: \$50.61/hour



Networking Administration A.A.S. Degree
Networking Administration Diploma60 cr.
PC Technician Certificate30 cr.

NETWORKING ADMINISTRATION - A.A.S. DEGREE

First Year - First Semester

	Total Credits	15
SPEE1020	Interpersonal Communication	3
COML1400	Introduction to Computers	3
ISTC1040	Network Systems I	3
ISTC1030	Operating Systems I	3
ISTC1100	Business Communications	3

First Year - Second Semester

ISTC1033 Operating Systems II ISTC1050 Database Systems ISTC1400 Wireless Systems ISTC2005 Network Systems II ENGL1150 Composition I		Total Credits	18
ISTC1033 Operating Systems II ISTC1050 Database Systems ISTC1400 Wireless Systems	ENGL1150	Composition I	3
ISTC1033 Operating Systems II ISTC1050 Database Systems	ISTC2005	Network Systems II	3
ISTC1033 Operating Systems II	ISTC1400	Wireless Systems	3
·	ISTC1050	Database Systems	3
	ISTC1033	Operating Systems II	3
ISTC1010 Microcomputer Maintenance	ISTC1010	Microcomputer Maintenance	3

Second Year - First Semester

	Total Credits	19
	General Education Elective**	7
ISTC2040	Database Management	3
ISTC2035	Operating System III	3
ISTC2010	Network Systems III	3
ISTC1060	Security I	3

Second Year - Second Semester

	Total Credits	19
	General Education Elective (MnTC Goal 3 or	4)**4
ISTC2140	Digital Convergence	3
ISTC2100	Project Management	3
ISTC2070	Security III: Forensics	3
ISTC2065	Security II: Firewalls	3
ISTC2015	Network Systems IV	3

TOTAL PROGRAM REQUIREMENTS 71

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

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas. 16

NETWORKING ADMINISTRATION - DIPLOMA

First Year - First Semester

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First Year - Second Semester

	Total Credits	15
ISTC2005	Network Systems II	3
ISTC1400	Wireless Systems	3
ISTC1050	Database Systems	3
ISTC1033	Operating Systems II	3
ISTC1010	Microcomputer Maintenance	3

Second Year - First Semester

	Total Credits	15
ISTC2040	Database Management	3
ISTC2035	Operating System III	3
ISTC2010	Network Systems III	3
ISTC1060	Security I	3
ENGL1150	Composition I	3

Second Year - Second Semester

	Total Credits	15
ISTC2140	Digital Convergence	3
ISTC2100	Project Management	3
ISTC2070	Security III: Forensics	3
ISTC2065	Security II: Firewalls	3
ISTC2015	Network Systems IV	3

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

TOTAL PROGRAM REQUIREMENTS

60

PC TECHNICIAN - CERTIFICATE

First Year - First Semester

	ntroduction to Computers	3
SPEEI020 II		
CDEE1000 L	nterpersonal Communication	3
ISTC1040 N	Network Systems I	3
ISTC1030	Operating Systems I	3
ISTC1100 E	Business Communications	3

First Year - Second Semester

	Total Credits	15
ISTC1400	Wireless Systems	3
ISTC1060	Security I	3
ISTC1050	Database Systems	3
ISTC1033	Operating Systems II	3
ISTC1010	Microcomputer Maintenance	3

TOTAL PROGRAM REQUIREMENTS 30

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

SOFTWARE DEVELOPMENT

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

Major Description

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

Work Environment

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

Potential Job Titles

- Computer Programmer
- · Computer Software Specialist
- Software Architect
- Software Developer
- · Software Development Engineer
- Software Quality Assurance Specialist

Salary Data

Average Wage: \$43.47/hourTop Earners: \$61.26/hour



Software Development A.A.S. Degree	
Software Development Diploma60 cr	:
Web Developer Diploma	

SOFTWARE DEVELOPMENT - A.A.S. DEGREE

First Year - First Semester

ISTC1030 Operating Systems I ISTC1040 Network Systems I ISTC1300 Introduction to Programming		Total Credits	18
ISTC1030 Operating Systems I ISTC1040 Network Systems I ISTC1300 Introduction to Programming	SPEE1020	Interpersonal Communication	3
ISTC1030 Operating Systems I ISTC1040 Network Systems I	COML1400	Introduction to Computers	3
ISTC1030 Operating Systems I	ISTC1300	Introduction to Programming	3
	ISTC1040	Network Systems I	3
ISTC1100 Business Communications	ISTC1030	Operating Systems I	3
	ISTC1100	Business Communications	3

First Year - Second Semester

	Total Credits	18
ENGL1150	Composition I	3
ISTC1205	Web Client Programming	3
ISTC1060	Security I	3
ISTC1050	Database Systems	3
ISTC1033	Operating Systems II	3
ISTC1010	Microcomputer Maintenance	3

Second Year - First Semester

	Total Credits	19
	General Education Elective**	7
ISTC2320	.NET I	3
ISTC2310	Java I	3
ISTC1230	System Analysis and Design	3
ISTC1210	Web Server Programming	3

Second Year - Second Semester

ISTC2050	Data Structures	3
ISTC2100	Project Management	3
ISTC2315	Java II	3
ISTC2325	.NET II	3
	General Education Elective (MnTC Goal 3 o	r 4)**4
	Total Credits	16

TOTAL PROGRAM REQUIREMENTS

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

** Select General Education electives from any MnTC goal area. See pages 114-116 for MnTC goal areas. 71

SOFTWARE DEVELOPMENT - DIPLOMA

First Year - First Semester

	Total Credits	15
COML1400	Introduction to Computers	3
ISTC1300	Introduction to Programming	3
ISTC1040	Network Systems I	3
ISTC1030	Operating Systems I	3
ISTC1100	Business Communications	3

First Year - Second Semester

	Total Credits	15
ISTC1205	Web Client Programming	3
ISTC1060	Security I	3
ISTC1050	Database Systems	3
ISTC1033	Operating Systems II	3
ISTC1010	Microcomputer Maintenance	3

Second Year - First Semester

	Total Credits	15
SPEE1020	Interpersonal Communication	3
ISTC2320	.NET I	3
ISTC2310	Java I	3
ISTC1230	System Analysis and Design	3
ISTC1210	Web Server Programming	3

Second Year - Second Semester

ISTC2050 Data Structures ISTC2100 Project Management ISTC2315 Java II ISTC2325 .NET II ENGL1150 Composition I		Total Credits	15
ISTC2100 Project Management ISTC2315 Java II	ENGL1150	Composition I	3
ISTC2100 Project Management	ISTC2325	.NET II	3
	ISTC2315	Java II	3
ISTC2050 Data Structures	ISTC2100	Project Management	3
	ISTC2050	Data Structures	3

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

TOTAL PROGRAM REQUIREMENTS

60

WEB DEVELOPER - DIPLOMA

First Year - First Semester

ISTC1100Business Communications3ISTC1030Operating Systems I3ISTC1300Introduction to Programming3VCOM1032Interactive Design Fundamentals2COML1400Introduction to Computers3		Total Credits	14
ISTC1030 Operating Systems I 3 ISTC1300 Introduction to Programming 3	COML1400	Introduction to Computers	3
ISTC1030 Operating Systems I 3	VCOM1032	Interactive Design Fundamentals	2
	ISTC1300	Introduction to Programming	3
ISTC1100 Business Communications 3	ISTC1030	Operating Systems I	3
	ISTC1100	Business Communications	3

First Year - Second Semester

ISTC1060 Security I 3 ISTC1205 Web Client Programming 3 ISTC1210 Web Server Programming 3 ISTC2320 .NET I 3		Total Credits	18
ISTC1060 Security I 3 ISTC1205 Web Client Programming 3 ISTC1210 Web Server Programming 3	SPEE1020	Interpersonal Communication	3
ISTC1060 Security I 3 ISTC1205 Web Client Programming 3	ISTC2320	.NET I	3
ISTC1060 Security I	ISTC1210	Web Server Programming	3
, and the second	ISTC1205	Web Client Programming	3
ISTC1050 Database Systems 3	ISTC1060	Security I	3
	ISTC1050	Database Systems	3

TOTAL PROGRAM REQUIREMENTS 32

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

EXECUTIVE & ADMINISTRATIVE ASSISTANT

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

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

Major Description

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

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

Work Environment

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

Potential Job Titles

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

Salary Data

Average Wage: \$21.67/hourTop Earners: \$29.04/hour

EXECUTIVE ASSISTANT - A.A.S. DEGREE

Pending MnSCU Board Approval

First Year - First Semester

	Total Credits	17
COML1400	Introduction to Computers	3
OFFC1030	Word Processing	3
OFFC1020	Office Procedures	4
OFFC1019	Receptionist Skills	2
OFFC1010	Business English Skills	2
OFFC1005	Keyboarding/Formatting	3

First Year - Second Semester

OFFC1230 MS Publisher OFFC1260 Certification Basics - Word		Total Credits	15
OFFC1230 MS Publisher OFFC1260 Certification Basics - Word OFFC1275 Certification Basics - PowerPoint	OFFC1290	Written Business Communications	2
OFFC1230 MS Publisher OFFC1260 Certification Basics - Word	OFFC1285	Oral Business Comm./Job Seeking Skills	2
OFFC1230 MS Publisher	OFFC1275	Certification Basics - PowerPoint	3
0,	OFFC1260	Certification Basics - Word	3
OFFC1017 Technology for the Business Professional	OFFC1230	MS Publisher	2
	OFFC1017	Technology for the Business Professional	3

Second Year - First Semester

Second Year - Second Semester

Total Credits

	Total Credits	16
	General Education Elective (MnTC Goal 3 or	4)**4
SPEE1020	Interpersonal Communication	3
	Technical Elective*	9

OFFC1040	Integrated Office Skills	3
	Technical Elective*	3
ENGL1150	Composition I	3
	General Education Elective**	3

TOTAL PROGRAM REQUIREMENTS 60

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

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

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

ADMINISTRATIVE ASSISTANT - DIPLOMA

First Year - First Semester

	Total Credits	17
COML1400	Introduction to Computers	3
OFFC1030	Word Processing	3
OFFC1020	Office Procedures	4
OFFC1019	Receptionist Skills	2
OFFC1010	Business English Skills	2
OFFC1005	Keyboarding/Formatting	3

First Year - Second Semester

	Total Credits	21
SPEE1020	Interpersonal Communication	3
OFFC1290	Written Business Communications	2
OFFC1285	Oral Business Comm./Job Seeking Skills	2
OFFC1275	Certification Basics - PowerPoint	3
OFFC1260	Certification Basics - Word	3
OFFC1230	MS Publisher	2
OFFC1040	Integrated Office Skills	3
OFFC1017	Technology for the Business Professional	3
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This is a sample course sequence resulting in a diploma.
Please consult your program advisor regarding your academic plans.

TOTAL PROGRAM REQUIREMENTS

RECEPTIONIST - CERTIFICATE

First Year - First Semester

OFFC1019 Receptionist Skills 2		Total Credits	12
OFFC1010 Business English Skills 2 OFFC1019 Receptionist Skills 2	COML1400	Introduction to Computers	3
OFFC1010 Business English Skills	OFFC1020	Office Procedures	4
, c	OFFC1019	Receptionist Skills	2
OFFC1000 Basic Keyboarding	OFFC1010	Business English Skills	2
	OFFC1000	Basic Keyboarding	1

First Year - Second Semester

OFFC1030	Word Processing	3
OFFC1285	Oral Business Comm./Job Seeking Skills	2
OFFC1290	Written Business Communications	2
	Technical Elective*	6
	Total Credits	13
	TOTAL PROGRAM REQUIREMENTS	25

This is a sample course sequence resulting in a certificate.

Please consult your program advisor regarding your academic plans.

* Technical electives may be selected from the following subject areas:

OFFC, ISTC, ENTR, SMGT or ACCT.



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LEGAL ADMINISTRATIVE ASSISTANT

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

Major Description

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

Work Environment

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

Potential Job Titles

- · Legal Administrative Assistant
- Law Secretary
- Legal Secretary
- Paralegal
- · Paralegal Secretary

Salary Data

Average Wage: \$24.03/hourTop Earners: \$31.37/hour



Legal Administrative Assistant A.A.S. Degree	i0 cr.
Legal Administrative Assistant Diploma	39 cr.
Legal Receptionist Certificate	25 cr.

LEGAL ADMINISTRATIVE ASSISTANT - A.A.S. DEGREE

Pending MnSCU Board Approval

First Year - First Semester

	Total Credits	17
COML1400	Introduction to Computers	3
OTEC1725	Transactional Law †	3
OFFC1020	Office Procedures	4
OFFC1019	Receptionist Skills	2
OFFC1010	Business English Skills	2
OFFC1005	Keyboarding/Formatting	3

First Year - Second Semester

	Total Credits	17
OTEC1730	Civil Procedures †	3
OFFC1290	Written Business Communications	2
OFFC1275	Certification Basics - PowerPoint	3
OFFC1040	Integrated Office Skills	3
OFFC1030	Word Processing	3
OFFC1017	Technology for the Business Professional	3

Second Year - First Semester

	Total Credits	12
PHIL1100	Ethics	3
ENGL1150	Composition I	3
OTEC2735	Family Law/Criminal Law †	3
OFFC1260	Certification Basics - Word	3

Second Year - Second Semester

OFFC1285 Oral Business Comm./Job Seeking Skills OTEC2740 Legal Proofreading & Editing † SPEE1020 Interpersonal Communication Technical Elective* General Education Elective (MnTC Goal 3 or 4)***		Total Credits	14
OTEC2740 Legal Proofreading & Editing † 3 SPEE1020 Interpersonal Communication 3		General Education Elective (MnTC Goal 3	or 4)**4
OTEC2740 Legal Proofreading & Editing †		Technical Elective*	2
,	SPEE1020	Interpersonal Communication	3
OFFC1285 Oral Business Comm./Job Seeking Skills 2	OTEC2740	Legal Proofreading & Editing †	3
	OFFC1285	Oral Business Comm./Job Seeking Skills	2

TOTAL PROGRAM REQUIREMENTS 60

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

[†] Courses offered online from South Central College-Mankato.

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

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

LEGAL ADMINISTRATIVE ASSISTANT - DIPLOMA

First Year - First Semester

OFFC1005 Keyboarding/Formatting OFFC1010 Business English Skills OFFC1019 Receptionist Skills OFFC1020 Office Procedures OFFC1030 Word Processing OTEC1725 Transactional Law † COML1400 Introduction to Computers		Total Credits	20
OFFC1010 Business English Skills OFFC1019 Receptionist Skills OFFC1020 Office Procedures OFFC1030 Word Processing	COML1400	Introduction to Computers	3
OFFC1010 Business English Skills OFFC1019 Receptionist Skills OFFC1020 Office Procedures	OTEC1725	Transactional Law [†]	3
OFFC1010 Business English Skills OFFC1019 Receptionist Skills	OFFC1030	Word Processing	3
OFFC1010 Business English Skills	OFFC1020	Office Procedures	4
	OFFC1019	Receptionist Skills	2
OFFC1005 Keyboarding/Formatting	OFFC1010	Business English Skills	2
	OFFC1005	Keyboarding/Formatting	3

First Year - Second Semester

Interpersonal Communication	3
Civil Procedures	3
Written Business Communications	2
Oral Business Comm./Job Seeking Skills	2
Certification Basics - PowerPoint	3
Certification Basics - Word	3
Integrated Office Skills	3
	Certification Basics - Word Certification Basics - PowerPoint Oral Business Comm./Job Seeking Skills Written Business Communications Civil Procedures

TOTAL PROGRAM REQUIREMENTS 39

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

LEGAL RECEPTIONIST - CERTIFICATE

First Year - First Semester

	Total Credits	15
COML1400	Introduction to Computers	3
OTEC1725	Transactional Law [†]	3
OFFC1020	Office Procedures	4
OFFC1019	Receptionist Skills	2
OFFC1010	Business English Skills	2
OFFC1000	Basic Keyboarding	1

First Year - Second Semester

	Total Credits	10
	Technical Elective*	3
OFFC1290	Written Business Communications	2
OFFC1285	Oral Business Comm./Job Seeking Skills	2
OFFC1030	Word Processing	3

TOTAL PROGRAM REQUIREMENTS 25

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

 $^{^{\}dagger}$ Courses offered online from South Central College-Mankato.

[†] Courses offered online from South Central College-Mankato.

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

MEDICAL ADMINISTRATIVE ASSISTANT

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

Major Description

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

Work Environment

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

Potential Job Titles

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

Salary Data

Average Wage: \$17.35/hourTop Earners: \$21.36/hour



Medical Administrative Assistant A.A.S. Degree 60 cr.	
Medical Administrative Assistant Diploma	
Medical Receptionist Certificate	

MEDICAL ADMINISTRATIVE ASSISTANT - A.A.S. DEGREE

Pending MnSCU Board Approval

First Year - First Semester

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

First Year - Second Semester

Anatomy and Physiology	2
Writter Business Communications	2
Written Business Communications	2
Oral Business Comm./Job Seeking Skills	2
Speech Recognition Transcription	2
Medical Transcription II	2
Medical Transcription I	2
Word Processing	3
	Medical Transcription I Medical Transcription II Speech Recognition Transcription Oral Business Comm./Job Seeking Skills

Second Year - First Semester

	Total Credits	17
	General Education Elective**	1
SPEE1020	Interpersonal Communication	3
PSYC1100	General Psychology	3
ENGL1150	Composition I	3
OFFC1260	Certification Basics - Word	3

Second Year - Second Semester

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

TOTAL PROGRAM REQUIREMENTS

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

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

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

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MEDICAL ADMINISTRATIVE ASSISTANT - DIPLOMA

First Year - First Semester

	Total Credits	19
COML1400	Introduction to Computers	3
OFFC1057	Medical Office Procedures	4
OFFC1045	Medical Terminology	2
OFFC1030	Word Processing	3
OFFC1019	Receptionist Skills	2
OFFC1010	Business English Skills	2
OFFC1005	Keyboarding/Formatting	3

First Year - Second Semester

	Total Credits	20
SPEE1020	Interpersonal Communication	3
HEAL1101	Anatomy and Physiology	4
OFFC1290	Written Business Communications	2
OFFC1285	Oral Business Comm./Job Seeking Skills	2
OFFC1260	Certification Basics - Word	3
OFFC1040	Integrated Office Skills	3
OFFC1017	Technology for Business Professionals	3

TOTAL PROGRAM REQUIREMENTS 39

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

MEDICAL RECEPTIONIST - CERTIFICATE

First Year - First Semester

	Total Credits	14
COML1400	Introduction to Computers	3
OFFC1057	Medical Office Procedures	4
OFFC1045	Medical Terminology	2
OFFC1019	Receptionist Skills	2
OFFC1010	Business English Skills	2
OFFC1000	Basic Keyboarding	1

First Year - Second Semester

OFFC1030 Word Processing 3 OFFC1285 Oral Business Comm./Job Seeking Skills 2 OFFC1290 Written Business Communications 2 HEAL1101 Anatomy and Physiology 4 Total Credits 11		TOTAL PROGRAM REQUIREMENTS	25
OFFC1285 Oral Business Comm./Job Seeking Skills 2 OFFC1290 Written Business Communications 2		Total Credits	11
OFFC1285 Oral Business Comm./Job Seeking Skills 2	HEAL1101	Anatomy and Physiology	4
9	OFFC1290	Written Business Communications	2
OFFC1030 Word Processing 3	OFFC1285	Oral Business Comm./Job Seeking Skills	2
	OFFC1030	Word Processing	3

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

MEDICAL CODING SPECIALIST

Delivery: Daytime Classes Start: Fall or Spring Semester, Full- or Part-Time Location: Rosemount Campus Program in partnership with Anoka Technical College

Major Description

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

Work Environment

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

Potential Job Titles

- · Medical Biller Coder
- Medical Billing Specialist
- Medical Coding Specialist
- Medical Insurance Clerk
- Medical Voucher Clerk

Salary Data (Health Careers Center)

- Average salary (U.S.): \$31,300/year
- Top earners (U.S.): \$39,700/year



Medical Coding Specialist Diploma		cr.
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MEDICAL CODING SPECIALIST - DIPLOMA

First Year - First Semester

ADSC1221 Intro to Health Information Management † ADSC1231 ICD-9-CM Coding † OFFC1005 Keyboarding/Formatting OFFC1045 Medical Terminology COML1400 Introduction to Computers		Total Credits	14
ADSC1231 ICD-9-CM Coding † OFFC1005 Keyboarding/Formatting	COML1400	Introduction to Computers	3
ADSC1231 ICD-9-CM Coding †	OFFC1045	Medical Terminology	2
	OFFC1005	Keyboarding/Formatting	3
ADSC1221 Intro to Health Information Management †	ADSC1231	ICD-9-CM Coding [†]	3
	ADSC1221	Intro to Health Information Management $^{\it t}$	3

First Year - Second Semester

	Total Credits	16
HEAL1702	Pharmacology Basics	1
HEAL1101	Anatomy and Physiology	4
HLTH1000	Disease Conditions †	2
ADSC1249	Advanced Coding and Reimbursement [†]	2
ADSC1244	Legal and Ethical Aspects in Health Care $^{\it t}$	2
ADSC1240	Coding/Reimbursement for Physicians' Service	es † 3
ADSC1040	Applied Medical Terminology †	2

Second Year - First Semester

	Total Credits	11
SPEE1020	Interpersonal Communication	3
ENGL1150	Composition I	3
OFFC1155	MS Excel II	2
ADSC1252	Professional Practice for Coding Specialist †	3

TOTAL PROGRAM REQUIREMENTS

41

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

[†] Courses offered through Anoka Technical College (ATC).

MEDICAL TRANSCRIPTIONIST

Delivery: Daytime Classes Start: Fall or Spring Semester, Full- or Part-Time Location: Rosemount Campus Medical Transcriptionist Diploma......39 cr.

Major Description

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

Work Environment

Careers are found in hospitals, clinics, extended-care facilities, medical research groups, and health departments and firms that provide medical transcription services.

Transcriptionists may also work from home.

Potential Job Titles

- Medical Stenographer
- Medical Transcriptionist
- Transcribing-Machine Operator

Salary Data

Average Wage: \$18.78/hourTop Earners: \$24.47/hour

MEDICAL TRANSCRIPTIONIST - DIPLOMA

First Year - First Semester

OFFC1005 Reyboarding/Formatting OFFC1010 Business English Skills OFFC1019 Receptionist Skills OFFC1030 Word Processing OFFC1045 Medical Terminology OFFC1057 Medical Office Procedures COML1400 Introduction to Computers		Total Credits	19
OFFC1010 Business English Skills OFFC1019 Receptionist Skills OFFC1030 Word Processing OFFC1045 Medical Terminology	OML1400	Introduction to Computers	3
OFFC1010 Business English Skills OFFC1019 Receptionist Skills OFFC1030 Word Processing	FFC1057	Medical Office Procedures	4
OFFC1010 Business English Skills OFFC1019 Receptionist Skills	FFC1045	Medical Terminology	2
OFFC1010 Business English Skills	FFC1030	Word Processing	3
<i>5</i>	FFC1019	Receptionist Skills	2
OFFCIOUS Keyboarding/Formatting	FFC1010	Business English Skills	2
OFFC100F 1/2 has all a /F a sall a	FFC1005	Keyboarding/Formatting	3

First Year - Second Semester

	Total Credits	20
SPEE1020	Interpersonal Communication	3
HEAL1101	Anatomy and Physiology	4
OFFC1290	Written Business Communications	2
OFFC1285	Oral Business Comm./Job Seeking Skills	2
OFFC1054	Speech Recognition Transcription	2
OFFC1053	Medical Transcription II	2
OFFC1052	Medical Transcription I	2
OFFC1017	Technology for the Business Professional	3

TOTAL PROGRAM REQUIREMENTS 39

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



Business & Management



Our Business and Management programs are delivered at the Partners in Higher Education site in Apple Valley, Minn., where three great colleges come together at one convenient location, allowing busy working adults to earn advanced degrees faster on a seamless track.

PROGRAMS OF STUDY

Business Entrepreneur	29
Business Management	30
Global Business	3
Individualized Studies	32
Industrial Distribution	33
Management for Airline Professionals	34
Management for Technical Professionals	35
Marketing & Sales	36
Meeting & Event Management	40
Multicultural Management	42
Real Estate/Property Management	44
Supervisory Management	46

TAKING CARE OF BUSINESS

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

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

TRAITS OF THE TRADE

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

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

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

Contact Us

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"Obstacles are those frightful things you see when you take your eyes off your goal."

— Henry Ford —

BUSINESS ENTREPRENEUR

Delivery: Evening Classes Start: Fall or Spring Semester, Full- or Part-Time Location: Apple Valley Site

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

ENITD1440	Cusposeful Marketing for Coroll Dusiness	4
ENTR1440	Successful Marketing for Small Business	4
ENTR1650	Selling Success for the Entrepreneur	3
ENTR1860	Business Plan Development	3
ENTR1900	Capitalizing a Small Business	2
	(or OFFC1340 or SMGT1601)	
SMGT1033	Business Law and Ethics	3
SMGT1250	Managing Customer Service	1
	Total Credits	18
	TOTAL PROGRAM REQUIREMENTS	18



BUSINESS MANAGEMENT

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

Major Description

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

Work Environment

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

Potential Job Titles

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

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

Salary Data (Payscale.com)

Office Manager

Average Wage: \$24.74/hourTop Earners: \$36.04/hour

Operations Manager

Average Wage: \$58.39/hourTop Earners: \$80/hour



BUSINESS MANAGEMENT - A.S. DEGREE

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

	Total Credits	30
SMGT2003	Management Skills III	3
SMGT2002	Management Skills II	3
SMGT2001	Management Skills I	3
SMGT1231	Planning & Project Management	2
SMGT1241	Effective Business Communication	3
SMGT1033	Business Law & Ethics	3
MKTC1000	Principles of Marketing	3
ENTR1170	Introduction to Small Business	2
ACCT1003	Accounting II	4
ACCT1000	Accounting I	4

General Education

	Total Credits	30
	General Education Elective**	17-18
Science	Science (Lab Preferred)	3-4
MATH	(College Algebra Preferred)	4
SPEE1020	Interpersonal Communication	3
ENGL1150	Composition I	3

TOTAL PROGRAM REQUIREMENTS 60

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

GLOBAL BUSINESS

Delivery: Online Classes Location: Apple Valley Site Start: Fall or Spring Semester, Full- or Part-Time

Major Description

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

Work Environment

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

Potential Job Titles

- International Business Development Manager
- Team Leader
- Supervisor
- Manager
- International Event Manager
- International Marketing Professional
- International Logistic Professional

Salary Data

- Average wage: \$27.61
- Top earners: \$39.38

GLOBAL BUSINESS - CERTIFICATE

Pending MnSCU Approval

	Total Credits	10
	Total Credits	18
SMGT2129	Global Supply Chain Management	3
SMGT2128	Trade Finance	3
MKTC2550	International Marketing	3
SMGT2127	International Enterprise Transactions	3
SMGT2126	Import and Export	3
SMGT2125	International Business	3



INDIVIDUALIZED STUDIES

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

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 fouryear 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.

	TOTAL PROGRAM CREDITS	60
	Total Credits	60
	General Education**	30
	Technical Elective	11
	Required Technical Courses*	18
SMG1 2950	Prior Experiential Learning Portfolio or	INDS1000 I

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



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

INDUSTRIAL DISTRIBUTION

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

Major Description

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

Work Environment

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

Potential Job Titles

- Customer Service Manager
- · Technical Sales Manager
- Field Sales Manager
- · Purchasing Manager
- · Branch Manager
- Distribution Manager
- Technician
- Commission Sales Manager
- Warehouse Manager

Salary Data (2006 Cross-Industry Compensation Report)

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



INDUSTRIAL DISTRIBUTION - A.A.S. DEGREE

	Total Credits	60
	General Education	20
	Technical Elective*	1-6
ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
ELEC2970	Internship	1-6
SMGT2125	International Business	3
SMGT1250	Managing Customer Service	1
SMGT1242	Effective Business Communication	3
SMGT1231	Planning & Project Management	2
SMGT1205	Total Quality Management	4
ELEC2110	Electrical Apparatus Theory	3
SMGT1082	Distribution, Operations, & Logistics	3
MKTC1100	Fundamentals of Sales	3
MKTC1000	Principles of Marketing	3
ELEC1140	Blueprint Reading for Technicians †	3
ELEC1120	AC Electricity Theory and Lab †	3
ELEC1110	DC Electricity Theory and Lab †	3

TOTAL PROGRAM REQUIREMENTS 60

[†] Approved substitutions available - see advisor

^{*} Technical Elective - ELEC2970 Internship and/or Technical Elective must total six credits.

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

MANAGEMENT FOR AIRLINE PROFESSIONALS

Delivery: Daytime, Evening and Online Classes Start: Fall, Spring or Summer Session, Full- or Part-Time Location: Rosemount Campus, Apple Valley Site Mgmt. for Airline Professionals A.A.S. Degree 64 cr.

Major Description

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

Work Environment

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

Potential Job Titles

- Airline Maintenance Manager
- · Airline Ticketing Manager
- Airline Baggage Manager
- Airline Ramp Supervisor
- Supervisor/Manager

Salary Data (2006 Cross-Industry Compensation Report)

Aircraft Maintenance Supervisor

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



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

Prior Learning Credits (Aviation Experience)	1-30
Technical Elective	14-13
General Education**	20
Total Credits	64
TOTAL PROGRAM REQUIREMENTS	64

Please consult your program advisor regarding your academic plans.

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

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

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

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MANAGEMENT FOR TECHNICAL PROFESSIONALS

Delivery: Daytime, Evening and Online Classes Start: Fall, Spring or Summer Session, Full- or Part-Time Location: Rosemount Campus, Apple Valley Site Mgmt. for Technical Professionals A.A.S. Degree......... 64 cr.

Major Description

Highly individualized based on a student's technical expertise and educational needs, this program provides the necessary skills to succeed in leadership positions or enhance career mobility. Students who do not have experience in a technical field should consider the Supervisory Management program.

Work Environment

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

Potential Job Titles

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

Salary Data

Human Resources Manager

• Salary Range: \$52.70-77.39/hour

Manufacturing Manager

• Salary Range: \$49.60-78.14/hour

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

Prior Learning Credits (Technical Experience)	1-30
Technical Elective	14-13
General Education**	20
Total Credits	64

Please consult your program advisor regarding your academic plans.

TOTAL PROGRAM REQUIREMENTS

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

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

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



MARKETING & SALES

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

Business Marketing A.S. Degree
Business Marketing Specialist A.A.S. Degree 60 cr.
Marketing Communications Specialist Certificate 28 cr.
Marketing Event Specialist Certificate
Marketing Design Specialist A.A.S. Degree 60 cr.
Marketing Design Specialist Diploma
Sales Management Specialist A.A.S. Degree60 cr.
Sales Specialist Certificate

Major Description

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

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

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

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

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

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

Work Environment

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

Potential Job Titles

- Commercial Marketing Specialist
- Marketing Administrator
- Marketing Coordinator
- Brand Manager
- Business Development Specialist
- Media Planner
- Sales Manager
- Marketing Event Coordinator

Salary Data

Sales Manager

Average Wage: \$56.26/hourTop Earners: \$80/hour

Marketing Manager

Average Wage: \$60.31/hourTop Earners: \$80/hour



BUSINESS MARKETING - A.S. DEGREE

This degree is designed for students wishing to transfer to a fouryear institution to obtain an advanced degree.

	TOTAL PROGRAM REQUIREMENTS	60
	Total Credits	60
	General Education**	30
MKTC2815	Business Law	3
MKTC2600	Marketing Research	3
MKTC2505	E-Marketing	3
MKTC2310	Public Relations	3
MKTC2105	Marketing Communications Writing	3
MKTC2220	Promotional Marketing	2
MKTC2060	Proposal Writing	1
MKTC2000	Advertising Practices and Procedures	3
MKTC1150	Consumer and Professional Buying Behavior	3
MKTC1100	Fundamentals of Sales	3
MKTC1000	Principles of Marketing	3

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

BUSINESS MARKETING SPECIALIST - A.A.S. DEGREE

	Total Credits	45
	Technical Elective*	3
MKTC2970	Internship	3
MKTC2900	Portfolio and Interviewing	1
MKTC2815	Business Law	3
MKTC2600	Marketing Research	3
MKTC2550	International Marketing	3
MKTC2505	E-Marketing	3
MKTC2410	Marketing Visual Communications	1
MKTC2310	Public Relations	3
MKTC2220	Promotional Marketing	2
MKTC2105	Marketing Communications Writing	3
MKTC2060	Proposal Writing	1
MKTC2000	Advertising Practices and Procedures	3
MKTC1150	Consumer and Professional Buying Behavior	3
MKTC1100	Fundamentals of Sales	3
MKTC1000	Principles of Marketing	3
ACCT1000	Accounting I	4

General Education

COML1400	Introduction to Computers	3
ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
	Science or Math course	3
	General Education Elective**	3
	Total Credits	15

TOTAL PROGRAM REQUIREMENTS 60

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

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

MARKETING COMMUNICATIONS SPECIALIST - CERTIFICATE

	TOTAL PROGRAM PEGLIPEMENTS	28
	Total Credits	28
MKTC2900	Portfolio and Interviewing	1
MKTC2815	Business Law	3
MKTC2600	Marketing Research	3
MKTC2505	E-Marketing	3
MKTC2410	Marketing Visual Communications	1
MKTC2310	Public Relations	3
MKTC2220	Promotional Marketing	2
MKTC2000	Advertising Practices and Procedures	3
MKTC1150	Consumer and Professional Buying Behavior	3
MKTC1100	Fundamentals of Sales	3
MKTC1000	Principles of Marketing	3

MARKETING EVENT SPECIALIST - CERTIFICATE

	TOTAL PROGRAM REQUIREMENTS	28
	Total Credits	28
SMGT1163	Event Promotion	3
SMGT1162	and Event Management Special Event Coordination and Management	3
SMGT1161	and Event Management Advanced Meeting, Conference,	3
SMGT1160	Fundamental of Meeting, Conference,	2
MKTC2310	Public Relations	3
MKTC2220	Promotional Marketing	2
MKTC2105	Marketing Communications Writing	3
MKTC2000	Advertised Practices and Procedures	3
MKTC1100	Fundamentals of Marketing	3
MKTC1000	Principles of Marketing	3

MARKETING DESIGN SPECIALIST - A.A.S. DEGREE

		45
VCOM2685	Web Page Construction I	2
VCOM1410	Introduction to Illustrator	2
VCOM1430	Introduction to InDesign	2
VCOM1010	Introduction to Photoshop	2
MKTC2970	Internship	3
MKTC2900	Portfolio and Interviewing	1
MKTC2815	Business Law	3
MKTC2600	Marketing Research	3
MKTC2550	International Marketing	3
MKTC2505	E-Marketing	3
MKTC2410	Marketing Visual Communications	1
MKTC2310	Public Relations	3
MKTC2220	Promotional Marketing	2
MKTC2105	Marketing Communications Writing	3
MKTC2000	Advertising Practices and Procedures	3
MKTC1150	Consumer and Professional Buying Behavior	3
MKTC1100	Fundamentals of Sales	3
MKTC1000	Principle of Marketing	3

General Education

COML1400	Introduction to Computers	3
ENGL1150	Composition I	3
SPEE1020	Interpersonal Communications	3
	Science or Math course	3
	General Education Elective**	3
	Total Credits	15
	TOTAL PROGRAM CREDITS	60

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

MARKETING DESIGN SPECIALIST - DIPLOMA

	Total Credits	37
VCOM2685	Web Page Construction I	2
VCOM1410	Introduction to Illustrator	2
VCOM1435	Proofreading Fundamentals	1
VCOM1430	Introduction to InDesign	2
VCOM1010	Introduction to Photoshop	2
MKTC2900	Portfolio and Interviewing	1
MKTC2815	Business Law	3
MKTC2600	Marketing Research	3
MKTC2505	E-Marketing	3
MKTC2410	Marketing Visual Communications	1
MKTC2310	Public Relations	3
MKTC2220	Promotional Marketing	2
MKTC2000	Advertising Practices and Procedures	3
MKTC1150	Consumer and Professional Buying Behavior	3
MKTC1100	Fundamentals of Sales	3
MKTC1000	Principles of Marketing	3

General Education

	TOTAL PROGRAM CREDITS	16
	Total Credits	9
SPEE1020	Interpersonal Communications	3
ENGL1150	Composition I (or ENGL1000)	3
COML1400	Introduction to Computers	3

SALES MANAGEMENT SPECIALIST - A.A.S. DEGREE

	Total Credits	45
	Technical Elective*	2
SMGT2400	Retail Management	3
SMGT2003	Management Skills III	3
SMGT2002	Management Skills II	3
SMGT2001	Management Skills I	3
MKTC2970	Internship	3
MKTC2900	Portfolio and Interviewing	1
MKTC2815	Business Law	3
MKTC2550	International Marketing	3
MKTC2505	E-Marketing	3
MKTC2220	Promotional Writing	2
MKTC2060	Proposal Writing	1
MKTC2000	Advertising Practices and Procedures	3
MKTC1200	Professional Sales	3
MKTC1150	Consumer and Professional Buying	3
MKTC1100	Fundamentals of Sales	3
MKTC1000	Principles of Marketing	3

General Education

	Total Credits	15
	General Education Elective**	3
	Science or Math course	3
SPEE1020	Interpersonal Communications	3
ENGL1150	Composition I	3
COML1400	Introduction to Computers	3

TOTAL PROG	FRAM CREDITS	60

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

SALES SPECIALIST - CERTIFICATE

	TOTAL PROGRAM REQUIREMENTS	12
	Total Credits	12
MKTC1200	Professional Sales	3
MKTC1150	Consumer and Professional Buying Behavior	3
MKTC1100	Fundamentals of Sales	3
MKTC1000	Principles of Marketing	3

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

MEETING & EVENT MANAGEMENT

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

Major Description

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

Work Environment

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

Hospitality Management Emphasis

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

Casino Management Emphasis

• For positions in casinos and other gaming venues

Potential Job Titles

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

Salary Data

Average Wage: \$22.43/hourTop Earners: \$31.70/hour

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

	Total Credits	40
	Technical Emphasis **	9
SMGT2003	Management Skills III, Leading and Controlling	3
SMGT2002	Management Skills II, Planning and Organizing	3
SMGT2001	Management Skills I, Foundations in Mgmt.	3
SMGT1167	Meeting and Event Sponsorship †	3
SMGT1695	Hospitality Risk Management	2
SMGT1680	Hospitality Space and Logistics Management	3
SMGT1665	Lodging Operations	3
SMGT1163	Event Promotion	3
SMGT1162	Special Event Coordination and Management	3
	and Event Management	
SMGT1161	Advanced Meeting, Conference	3
	and Event Management	
SMGT1160	Fundamentals of Meeting, Conference	2

General Education

	Total Credits	20
	General Education Elective**	8
PHIL1200	Critical Thinking	3
SPEE1020	Interpersonal Communications	3
ENGL1150	Composition I	3
COML1400	Introduction to Computers	3

TOTAL PROGRAM REQUIREMENTS 60

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

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

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

Hospitality Management Emphasis ***

	Total Credits	9
SMGT1685	Hospitality and Tourism Guest Services	2
SMGT1675	Hotel Front Office Management	3
SMGT1670	Lodging Systems and Technology	2
SMGT1660	Introduction to Hospitality and Tourism	2

Casino Management Emphasis ††

	Total Credits	9
	Technical Elective*	3
SMGT1975	Casino Products: Protections and Probabilities	3
SMGT1970	Casino Operations	3

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

MEETING & EVENT MANAGEMENT - CERTIFICATE

SMGT1160 Fundamentals of Meeting, Conference, and Event Management SMGT1161 Advanced Meeting, Conference, and Event Management SMGT1162 Special Event Coordination and Management 3 SMGT1163 Event Promotion 3 SMGT1167 Meeting and Event Sponsorship † 3 SMGT1695 Hospitality Risk Management 2 Total Credits 16		TOTAL PROGRAM REQUIREMENTS	16
and Event Management SMGT1161 Advanced Meeting, Conference, and Event Management SMGT1162 Special Event Coordination and Management 3 SMGT1163 Event Promotion 3 SMGT1167 Meeting and Event Sponsorship † 3		Total Credits	16
and Event Management SMGT1161 Advanced Meeting, Conference, 3 and Event Management SMGT1162 Special Event Coordination and Management 3 SMGT1163 Event Promotion 3	SMGT1695	Hospitality Risk Management	2
and Event Management SMGT1161 Advanced Meeting, Conference, 3 and Event Management SMGT1162 Special Event Coordination and Management 3	SMGT1167	Meeting and Event Sponsorship †	3
and Event Management SMGT1161 Advanced Meeting, Conference, 3 and Event Management	SMGT1163	Event Promotion	3
and Event Management SMGT1161 Advanced Meeting, Conference, 3	SMGT1162	Special Event Coordination and Management	3
and Event Management		and Event Management	
	SMGT1161	Advanced Meeting, Conference,	3
SMGT1160 Fundamentals of Meeting, Conference, 2		and Event Management	
	SMGT1160	Fundamentals of Meeting, Conference,	2

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



MULTICULTURAL MANAGEMENT

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

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

Major Description

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

Work Environment

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

Potential Job Titles

- · Team Leader
- Manufacturing Supervisor
- Warehouse Manager
- Production Foreman
- Diversity Coordinator
- Human Resources Manager
- · Frontline Supervisor
- Human Resources Specialist

Salary Data

Average Wage: \$27.95/hourTop Earners: \$39.96/hour

MULTICULTURAL LEADERSHIP - DIPLOMA

	TOTAL PROGRAM REQUIREMENTS	33
	Total Credits	33
SPEE1020	Interpersonal Communication	3
SMGT2130	Creativity and Problem Solving	2
SMGT2125	International Business	3
SMGT2120	Multicultural Conflict Resolution	2
SMGT2116	Multicultural Mentorship II	1
SMGT2115	Multicultural Mentorship I	2
SMGT2110	Leading a Multicultural Workforce	3
SMGT2105	Managing Diversity	3
SMGT1776	Organizational Behavior	3
SMGT1601	Financial Management	2
SMGT1028	Management Effectiveness	3
SMGT1022	Leadership	3
SMGT1000	Principles of Supervision	3



MULTICULTURAL HUMAN RESOURCES MANAGEMENT - DIPLOMA

	Total Credits	33
SPEE1020	Interpersonal Communication	3
SMGT2130	Creativity and Problem Solving	2
SMGT2125	International Business	3
SMGT2120	Multicultural Conflict Resolution	2
SMGT2116	Multicultural Mentorship II	1
SMGT2115	Multicultural Mentorship I	2
SMGT2110	Leading a Multicultural Workforce	3
SMGT2105	Managing Diversity	3
SMGT1875	Training and Developing Employees	3
SMGT1470	Safety and Compliance Management	2
SMGT1441	Intro to Human Resource Management	3
SMGT1405	Managing Performance	3
SMGT1033	Business Law & Ethics	3

TOTAL PROGRAM REQUIREMENTS

33

MULTICULTURAL SUPERVISION - CERTIFICATE

SMGT2105 Managing Diversity SMGT2110 Leading a Muticultural Workforce SMGT2115 Multicultural Mentorship I SMGT2116 Multicultural Mentorship II SMGT2120 Multicultural Conflict Resolution SMGT2125 International Business Total Credits 1		TOTAL PROGRAM REQUIREMENTS	14
SMGT2110 Leading a Muticultural Workforce SMGT2115 Multicultural Mentorship I SMGT2116 Multicultural Mentorship II SMGT2120 Multicultural Conflict Resolution		Total Credits	14
SMGT2110 Leading a Muticultural Workforce SMGT2115 Multicultural Mentorship I SMGT2116 Multicultural Mentorship II	SMGT2125	International Business	3
SMGT2110 Leading a Muticultural Workforce SMGT2115 Multicultural Mentorship I	SMGT2120	Multicultural Conflict Resolution	2
SMGT2110 Leading a Muticultural Workforce	SMGT2116	Multicultural Mentorship II	1
	SMGT2115	Multicultural Mentorship I	2
SMGT2105 Managing Diversity	SMGT2110	Leading a Muticultural Workforce	3
	SMGT2105	Managing Diversity	3

REAL ESTATE/PROPERTY MANAGEMENT

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

Major Description

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

Work Environment

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

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

Potential Job Titles

- Apartment Rental Agent
- Real Estate Agent
- Realtor
- · Real Estate Closer
- · Condominium Manager
- · Facilities Coordinator
- · Housing Manager
- Property Administrator

Salary Data

Real Estate Agent

Average Wage: \$18.74/hourTop Earners: \$32.57/hour

Property Manager

Average Wage: \$28.30/hourTop Earners: \$49.18/hour

Real Estate/Property Management A.A.S. Degree 64 cr.	
Real Estate/Property Management Diploma 45 cr.	
Property Management Certificate 16 cr.	
General Real Estate Certificate	

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

	Total Credits	64
	General Education**	20
	Technical Elective*	17
PMGT2020	Negotiating for Agreement	1
PMGT1401	Real Estate Math and Calculator Basics	1
PMGT1304	Marketing Strategies for Small Business	1
PMGT1302	Planning and Operating a Small Business	1
PMGT1232	Cash Flow Analysis	1
PMGT1230	Income Property Marketing	1
PMGT1229	Subsidized Housing	1
PMGT1228	Community Association Management	1
PMGT1225	MN Landlord/Tenant Law	1
PMGT1224	Income Capitalization Analysis	1
PMGT1219	Leases and Tenant Relations	1
PMGT1217	Risk Management	1
PMGT1216	Managing Commercial/Industrial Properties	1
PMGT1215	Maintenance Management	1
PMGT1214	Life and Safety Issues	1
PMGT1213	Managing Residential Properties	1
PMGT1212	Residential Appraisal Workshop	1
PMGT1210	Appraisal Process	1
PMGT1207	Instruments of Real Estate Finance	1
PMGT1205	Loan Application and Processing	1
PMGT1200	Introduction to Property Management	1
PMGT1204	Real Estate III (Law)	2
PMGT1102	Real Estate II	2
PMGT1101	Real Estate I	2

TOTAL PROGRAM REQUIREMENTS 64

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

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

16

16

REAL ESTATE/PROPERTY MANAGEMENT - DIPLOMA

	Total Credits	36
	Technical Elective*	9
PMGT2020	Negotiating for Agreement	1
PMGT1401	Real Estate Math and Calculator Basics	1
PMGT1304	Marketing Strategies for Small Business	1
PMGT1302	Planning and Operating a Small Business	1
PMGT1232	Cash Flow Analysis	1
PMGT1230	Income Property Marketing	1
PMGT1229	Subsidized Housing	1
PMGT1228	Community Association Management	1
PMGT1225	MN Landlord/Tenant Law	1
PMGT1224	Income Capitalization Analysis	1
PMGT1219	Leases and Tenant Relations	1
PMGT1217	Risk Management	1
PMGT1216	Managing Commercial/Industrial Properties	1
PMGT1215	Maintenance Management	1
PMGT1214	Life and Safety Issues	1
PMGT1213	Managing Residential Properties	1
PMGT1212	Residential Appraisal Workshop	1
PMGT1210	Appraisal Process	1
PMGT1207	Instruments of Real Estate Finance	1
PMGT1205	Loan Application and Processing	1
PMGT1200	Introduction to Property Management	1
PMGT1204	Real Estate III (Law)	2
PMGT1102	Real Estate II	2
PMGT1101	Real Estate I	2

General Education

	Total Credits	9
SPEE1020	Interpersonal Communications	3
ENGL1150	Composition I (or ENGL1000)	3
COML1400	Introduction to Computers	3

TOTAL PROGRAM REQUIREMENTS 45

PROPERTY MANAGEMENT - CERTIFICATE

	Total Credits	16
PMGT2020*	Negotiating for Agreement	1
PMGT1304*	Marketing Strategies	1
PMGT1302*	Planning and Operating a Small Business	1
PMGT1232*	Cash Flow Analysis	1
PMGT1230*	Income Property Marketing	1
PMGT1229	Subsidized Housing	1
PMGT1228*	Community Association Management	1
PMGT1225	MN Landlord/Tenant Law	1
PMGT1224*	Income Capitalization Analysis	1
PMGT1219	Leases and Tenant Relations	1
PMGT1217	Risk Management	1
PMGT1216*	Managing Commercial/Industrial Properties	1
PMGT1215	Maintenance Management	1
PMGT1214*	Life and Safety Issues	1
PMGT1213*	Managing Residential Property	1
PMGT1200*	Introduction to Property Management	1

TOTAL PROGRAM REQUIREMENTS

GENERAL REAL ESTATE - CERTIFICATE

Planning and Operating a Small Business Marketing Strategies for Small Business Negotiating for Agreement	1
9	1
Planning and Operating a Small Business	
	1
Cash Flow Analysis	1
Community Association Management	1
Income Capitalization Analysis	1
Residential Appraisal Workshop	1
Appraisal Process	1
Financing Instruments	1
Loan Application/Processing	1
Real Estate III (Law)	2
Real Estate II	2
Real Estate I	2
	Real Estate II Real Estate III (Law) Loan Application/Processing Financing Instruments Appraisal Process Residential Appraisal Workshop Income Capitalization Analysis Community Association Management

TOTAL PROGRAM REQUIREMENTS

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

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

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

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

SUPERVISORY MANAGEMENT

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

Major Description

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

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

Work Environment

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

Potential Job Titles

- · Team Leader
- Supervisor
- Manager
- Human Resources Specialist/Manager
- Quality Specialist
- Event Manager

Salary Data

Average wage: \$27.95/hourTop earners: \$39.96/hour

Supervisory Management A.A.S. Degree	64 cr.
Supervisory Leadership Certificate	.17 cr.
Business Entrepreneur Certificate	18 cr.
Human Resource Development Certificate	.17 Cr
Meeting and Event Management Certificate	16 cr.
Quality Improvement Certificate	16 cr.
Multicultural Supervision Certificate	14 cr.

SUPERVISORY MANAGEMENT - A.A.S. DEGREE

	Total Credits	15-19
	Technical Elective*	1-5
SMGT1776	Organizational Behavior	3
SMGT1601	Financial Management	2
SMGT1028	Management Effectiveness	3
SMGT1022	Leadership	3
SMGT1000	Principles of Supervision	3

Graduation Project

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

Total Credits 1-6

18

Technical Emphasis ††

Choose two of the following emphasis area certificates:
Business Entrepreneur Certificate

Human Resource Development Certificate17Meeting and Event Management Certificate16Multicultural Supervision Certificate14Quality Improvement Certificate16

Total Credits 30-35

TOTAL PROGRAM REQUIREMENTS 64

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

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

	TOTAL PROGRAM REQUIREMENTS	17
	Total Credits	17
	General Education Elective	3
SMGT1776	Organizational Behavior	3
SMGT1601	Financial Management	2
SMGT1028	Management Effectiveness	3
SMGT1022	Leadership	3
SMGT1000	Principles of Supervision	3

SUPERVISORY LEADERSHIP - CERTIFICATE BUSINESS ENTREPRENEUR - CERTIFICATE

ENTR1170	Introduction to Small Business	2
ENTR1440	Successful Marketing for Small Business	4
ENTR1650	Selling Success for the Entrepreneur	3
ENTR1860	Business Plan Development	3
ENTR1900	Capitalizing a Small Business	2
	or OFFC1240 or SMGT1601	
SMGT1033	Business Law and Ethics	3
SMGT1250	Managing Customer Service	1
	Total Credits	18
	TOTAL PROGRAM REQUIREMENTS	18

Additional certificates listed on page 48.



HUMAN RESOURCE DEVELOPMENT -CERTIFICATE ††

	TOTAL PROGRAM REQUIREMENTS	17
	Total Credits	17
SPEE1020	Interpersonal Communication	3
SMGT1875	Training and Developing Employees	3
SMGT1470	Safety and Compliance Management	2
SMGT1441	Intro to Human Resource Management	3
SMGT1405	Managing Performance	3
SMGT1033	Business Law & Ethics	3

MEETING AND EVENT MANAGEMENT -CERTIFICATE ††

	Total Credits	16
SMGT1695	Hospitality Risk Management	2
SMGT1167	Meeting and Event Sponsorship †	3
SMGT1163	Event Promotion	3
SMGT1162	Special Event Coordination and Management	3
	and Event Management	
SMGT1161	Advanced Meeting, Conference,	3
	and Event Management	
SMGT1160	Fundamentals of Meeting, Conference,	2

TOTAL PROGRAM REQUIREMENTS

16

MULTICULTURAL SUPERVISION - CERTIFICATE **

	TOTAL PROGRAM REQUIREMENTS	14
	Total Credits	14
SMGT2125	International Business	3
SMGT2120	Multicultural Conflict Resolution	2
SMGT2116	Multicultural Mentorship II	1
SMGT2115	Multicultural Mentorship I	2
SMGT2110	Leading a Muticultural Workforce	3
SMGT2105	Managing Diversity	3

QUALITY IMPROVEMENT - CERTIFICATE **

	Total Credits	16
ENGL1150	Composition I	3
SMGT1250	Managing Customer Service	1
SMGT1231	Planning and Project Management	2
SMGT1242	Effective Business Communications	3
SMGT1260	Managing Teams	3
SMGT1205	Total Quality Management	4

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

Design



PROGRAMS OF STUDY

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

EXCELLENCE BY DESIGN

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

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

TRAITS OF THE TRADE

Successful professionals in the design fields have personalities that are:

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

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

Contact Us

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DEAN

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"Design must seduce, shape, and perhaps more importantly, evoke an emotional response."

— April Greiman —

ARCHITECTURAL TECHNOLOGY

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

Major Description

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

Work Environment

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

Potential Job Titles

- CAD Technician
- AutoCAD Technician
- · Computer-aided drafting and design drafter
- Draftsperson
- · Architectural drafter
- Drafter
- · Architectural Designer

Salary Data

Average Wage: \$23.78/hourTop Earners: \$33.24/hour



ARCHITECTURAL TECHNOLOGY - A.A.S. DEGREE

First Year - First Semester

	Total Credits	17
ARCT1107	CADI	3
ARCT1300	Intro to SketchUp Modeling	3
ARCT1103	Building Technology I	3
ARCT1100	Architectural Studio I	8

First Year - Second Semester

History of Architecture	4
CAD II	3
Building Technology II	3
Architectural Studio II	8
	Building Technology II CAD II

Second Year - First Semester

	Total Credits	19
	General Education Elective**	5
ARCT2107	CAD III	3
ARCT2103	Building Technology III	3
ARCT2100	Architectural Studio III	8

Second Year - Second Semester

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

TOTAL PROGRAM REQUIREMENTS 72

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

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

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

INTERIOR DESIGN

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

Major Description

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

Work Environment

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

Potential Job Titles

- Commercial Interior Designer
- · Kitchen and Bath Designer
- Residential Interior Designer
- Interior Design Coordinator
- · Facilities Coordinator
- · Store Planner

Salary Data

Average Wage: \$23.37/hourTop Earners: \$34.47/hour



First Year -	i ii st scinicstei	
IDES1100	Design Fundamentals	
IDES1110	Drafting for Interiors	4
IDES1120	Critical Thinking and Programming	4
IDES1135	Visual and Verbal Presentation	3
	Total Credits	15
First Year -	Second Semester	
IDES1206	Residential Studio I	3
IDES1217	Commercial Studio I	3
ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
	Total Credits	12
Second Ye	ar - First Semester	
IDES2106	Color and Light	3
IDES2110	Materials, Estimating, and Specifications	3
	General Education**	<u> </u>
	Total Credits	15
C 1 \/-	- Constant	
Second rea	ar - Second Semester	
	Communication of the communica	
IDES1225	Computer Aided Drafting	3
IDES1225 IDES1230	History of Art, Architecture, and Interiors	4
	History of Art, Architecture, and Interiors General Education**	6
	History of Art, Architecture, and Interiors	4
IDES1230	History of Art, Architecture, and Interiors General Education**	6
IDES1230	History of Art, Architecture, and Interiors General Education** Total Credits	6
IDES1230 Third Year	History of Art, Architecture, and Interiors General Education** Total Credits - First Semester	13
Third Year	History of Art, Architecture, and Interiors General Education** Total Credits - First Semester Interior Design Career Directions	13
Third Year IDES2100 IDES2136	History of Art, Architecture, and Interiors General Education** Total Credits - First Semester Interior Design Career Directions Commercial Studio II	13
Third Year IDES2100 IDES2136	History of Art, Architecture, and Interiors General Education** Total Credits - First Semester Interior Design Career Directions Commercial Studio II Residential Studio II (Kitchen and Bath)	13
Third Year IDES2100 IDES2136 IDES2146	History of Art, Architecture, and Interiors General Education** Total Credits - First Semester Interior Design Career Directions Commercial Studio II Residential Studio II (Kitchen and Bath) General Education**	13
Third Year IDES2100 IDES2136 IDES2146	History of Art, Architecture, and Interiors General Education** Total Credits - First Semester Interior Design Career Directions Commercial Studio II Residential Studio II (Kitchen and Bath) General Education** Total Credits	13
Third Year IDES2100 IDES2136 IDES2146 Third Year	History of Art, Architecture, and Interiors General Education** Total Credits - First Semester Interior Design Career Directions Commercial Studio II Residential Studio II (Kitchen and Bath) General Education** Total Credits - Second Semester	13 13 4 4 4 6
Third Year IDES2100 IDES2136 IDES2146 Third Year IDES2200	History of Art, Architecture, and Interiors General Education** Total Credits - First Semester Interior Design Career Directions Commercial Studio II Residential Studio II (Kitchen and Bath) General Education** Total Credits - Second Semester Professional Business Practices and Sales	13 13 24 24 6 15
Third Year IDES2100 IDES2136 IDES2146 Third Year IDES2200 IDES2210	History of Art, Architecture, and Interiors General Education** Total Credits - First Semester Interior Design Career Directions Commercial Studio II Residential Studio II (Kitchen and Bath) General Education** Total Credits - Second Semester Professional Business Practices and Sales Senior Studio	13 13 24 44 6
Third Year IDES2100 IDES2136 IDES2146 Third Year IDES2200 IDES2210	History of Art, Architecture, and Interiors General Education** Total Credits - First Semester Interior Design Career Directions Commercial Studio II Residential Studio II (Kitchen and Bath) General Education** Total Credits - Second Semester Professional Business Practices and Sales Senior Studio Internship	24 6 13 24 4 6 15
Third Year IDES2100 IDES2136 IDES2146 Third Year IDES2200 IDES2210	History of Art, Architecture, and Interiors General Education** Total Credits - First Semester Interior Design Career Directions Commercial Studio II Residential Studio II (Kitchen and Bath) General Education** Total Credits - Second Semester Professional Business Practices and Sales Senior Studio Internship General Education**	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

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

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

INTERIOR DESIGN - DIPLOMA

First Year - First Semester

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

First Year - Second Semester

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

Second Year - First Semester

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

Second Year - Second Semester

		Total Credits	15
SPEE1	1020	Interpersonal Communication	3
IDES2	970	Internship	4
IDES2	210	Senior Studio	5
IDES2	200	Professional Business Practices and Sales	3

TOTAL PROGRAM REQUIREMENTS 64

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

LANDSCAPE HORTICULTURE

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

Landscape	Horticulture	A.A.S.	Degr	ee.	 	 		 	72	Cr.
Landscape	Horticulture	Diplor	ma		 	 		 	64	Cr.

Major Description

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

- Landscape Design and Sales
- Landscape Construction
- · Greenhouse Production

Work Environment

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

Potential Job Titles

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

Salary Data

Average wage: \$14/hourTop Earners: \$20.85/hour



LANDSCAPE HORTICULTURE - A.A.S. DEGREE

First Year - First Semester

LAHT1100 Woody Plant Materials I 22 LAHT1200 Plant Pests 33 LAHT1300 Landscape Construction I 33 LAHT1502 Safety and Equipment 11 LAHT1510 Landscape Mathematics 11		Total Credits	16
LAHT1100Woody Plant Materials I2LAHT1200Plant Pests3LAHT1300Landscape Construction I3LAHT1502Safety and Equipment1	COML1400	Introduction to Computers	3
LAHT1100Woody Plant Materials I2LAHT1200Plant Pests3LAHT1300Landscape Construction I3	LAHT1510	Landscape Mathematics	1
LAHT1100 Woody Plant Materials I 2 LAHT1200 Plant Pests 3	LAHT1502	Safety and Equipment	1
LAHT1100 Woody Plant Materials I 2	LAHT1300	Landscape Construction I	3
	LAHT1200	Plant Pests	3
LAHT1010 Soil Science 3	LAHT1100	Woody Plant Materials I	2
	LAHT1010	Soil Science	3

First Year - Second Semester

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

Second Year - First Semester

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

Second Year - Second Semester

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

72

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

TOTAL PROGRAM REQUIREMENTS

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

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

LANDSCAPE HORTICULTURE - DIPLOMA

First Year - First Semester

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

First Year - Second Semester

LAHT1000	Plant Science	2
LAHT1110	Woody Plant Materials II	2
LAHT1310	Plant Maintenance	2
LAHT1320	Turf Management	3
LAHT1420	Protected Horticulture	3
LAHT1600	Landscape Design I	3
LAHT2970	Supervised Occupational Experience I	1
LAHT2970	Supervised Occupational Experience II	1

Total Credits 17

Second Year - First Semester

	Total Credits	16
	Technical Elective*	8
ENGL1150	Composition I (or ENGL1000)	3
LAHT2510	Landscape Estimating	3
LAHT2000	Herbaceous Plant Materials	2

Second Year - Second Semester

	Technical Elective*	4
SPEE1020 I	Tarabata de Elegatione	4
	nterpersonal Communication	3
LAHT2970 S	Supervised Occupational Experience IV	1
LAHT2970 S	Supervised Occupational Experience III	1
LAHT2500 L	Landscape Business Management	4
ACCT1005 F	Principles of Bookkeeping	2

TOTAL PROGRAM REQUIREMENTS 64

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

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

APPLIED VISUAL ARTS

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

4pplied	Visual Arts	A.A.S.	Degr	ee	 	 	 				72	Cr.
Applied	Visual Arts	Diplor	na		 	 	 				64	Cr.

Major Description

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

Work Environment

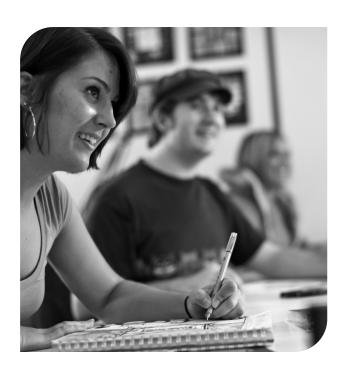
Visual artists often work in art or design studios both private and commercial. Job opportunities exist in the publishing, advertising, marketing and visual merchandising industries. Employment could be permanent or seasonal at business locations. Freelance artists in their own studios often work on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

Potential Job Titles

- Illustrator
- Visual Artist
- Historical Artist
- Mural Painter
- · Production Illustrator
- Exhibit Artist

Salary Data

Average Wage: \$21.54/hourTop Earners: \$33.26/hour



APPLIED VISUAL ARTS - A.A.S. DEGREE

First Year - First Semester

terpersonal Communication	
	3
pography Fundamentals	2
asic Drawing	3
isual Design Fundamentals	3
ayout I	2
troduction to Visual Communications	2
i	ayout I sual Design Fundamentals asic Drawing

First Year - Second Semester

	Total Credits	19
	General Education Elective**	5
	General Education Elective (MnTC Goal 3 or 4)	** 4
VCOM1410	Introduction to Illustrator	2
VCOM1095	Illustration Fundamentals	3
VCOM1060	Creative Problem Solving	3
VCOM1006	Color Theory and Applications	2

Second Year - First Semester

	Total Credits	19
	General Education Elective**	2
ENGL1150	Composition I	3
VCOM2420	Advanced Computer Illustration	3
VCOM2085	Drawing for Illustration	2
VCOM1400	Intro to QuarkXPress or VCOM1430	2
VCOM1051	Scale and Perspective	2
VCOM1021	Introduction to Photography	3
VCOM1010	Introduction to Photoshop	2

Second Year - Second Semester

	Total Credits	19
	General Education Elective**	3
	Technical Elective*	8
VCOM2730	Career Research Skills	1
VCOM2724	Portfolio for Applied Visual Arts	2
VCOM2095	Painting for Illustration	2
VCOM2035	Layout II	3

TOTAL PROGRAM REQUIREMENTS

This is a sample course sequence resulting in an A.A.S. degree.

72

Please consult your program advisor regarding your academic plans.

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

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

APPLIED VISUAL ARTS - DIPLOMA

First Year - First Semester

	Total Credits	15
SPEE1020	Interpersonal Communication	3
VCOM1415	Typography Fundamentals	2
VCOM1040	Basic Drawing	3
VCOM1030	Visual Design Fundamentals	3
VCOM1015	Layout I	2
VCOM1001	Introduction to Visual Communications	2

First Year - Second Semester

	Total Credits	17
	Technical Elective*	4
COML1400	Introduction to Computers	3
VCOM1410	Introduction to Illustrator	2
VCOM1095	Illustration Fundamentals	3
VCOM1060	Creative Problem Solving	3
VCOM1006	Color Theory and Applications	2

Second Year - First Semester

	Total Credits	17
ENGL1150	Composition I (or ENGL1000)	3
VCOM2420	Advanced Computer Illustration	3
VCOM2085	Drawing for Illustration	2
VCOM1400	Intro to QuarkXPress or VCOM1430	2
VCOM1051	Scale and Perspective	2
VCOM1021	Introduction to Photography	3
VCOM1010	Introduction to Photoshop	2

Second Year - Second Semester

	Total Credits	15
	Technical Elective*	7
VCOM2730	Career Research Skills	1
VCOM2724	Portfolio for Applied Visual Arts	2
VCOM2095	Painting for Illustration	2
VCOM2035	Layout II	3

TOTAL PROGRAM REQUIREMENTS 64

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

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

ELECTRONIC PUBLISHING

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

Major Description

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

Work Environment

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

Potential Job Titles

- Electronic Publishing Specialist
- · Production Designer
- Electronic Prepress Technician
- Preflight Technician/Troubleshooter
- Customer Service Representative

Salary Data

• Average Wage: \$22.73/hour • Top Earners: \$31.21/hour



Electronic Publishing A.A.S. Degree	72 cr.
Electronic Publishing Diploma	64 cr.

ELECTRONIC PUBLISHING - A.A.S. DEGREE

First Year - First Semester

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

Total Credits 19

First Year - Second Semester

	Total Credits	18
	Technical Elective*	8
	General Education Elective**	3
VCOM1435	Proofreading Fundamentals	1
VCOM1410	Introduction to Illustrator	2
VCOM1430	Intro to InDesign	2
VCOM1010	Introduction to Photoshop	2

Total Credits

Second Year - First Semester

	Total Credits	18
	General Education Elective (MnTC Goal 3 of	or 4)**4
	Technical Elective*	8
VCOM2422	Print Processes II	3
VCOM2415	Advanced Electronic Publishing	3

Second Year - Second Semester

Total Credits	17
General Education Elective**	7
Composition I (or ENGL1000)	3
Interpersonal Communication	3
VisCom Internship	4
	Interpersonal Communication Composition I (or ENGL1000)

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

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

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

ELECTRONIC PUBLISHING - DIPLOMA

First Year - First Semester

	Total Credits	17
VCOM1415	Typography Fundamentals	2
VCOM1060	Creative Problem Solving	3
VCOM1030	Visual Design Fundamentals	3
VCOM1021	Introduction to Photography	3
VCOM1015	Layout I	2
VCOM1006	Color Theory and Applications	2
VCOM1001	Introduction to Visual Communications	2

First Year - Second Semester

	Total Credits	16
	Technical Elective*	7
VCOM1435	Proofreading Fundamentals	1
VCOM1422	Print Processes I	2
VCOM1410	Introduction to Illustrator	2
VCOM1430	Introduction to InDesign	2
VCOM1010	Introduction to Photoshop	2

Second Year - First Semester

	Total Credits	18
	Technical Elective*	12
VCOM2422	Print Processes II	3
VCOM2415	Advanced Electronic Publishing	3

Second Year - Second Semester

	Total Credits	13
	General Education Elective**	3
ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
VCOM2970	VisCom Internship	4

TOTAL PROGRAM REQUIREMENTS 64

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

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

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

GRAPHIC DESIGN TECHNOLOGY

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

Major Description

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

Work Environment

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

Potential Job Titles

- · Advertising Designer
- Graphic Art Designer
- Graphic Artist
- · Visual Designer
- Graphic Design Specialist
- · Studio Designer

Salary Data

Average Wage: \$24.19/hourTop Earners: \$38.67/hour



GRAPHIC DESIGN TECHNOLOGY - A.A.S. DEGREE

First Year - First Semester

	Total Credits	18
VCOM1422	Print Processes I	2
VCOM1415	Typography Fundamentals	2
VCOM1060	Creative Problem Solving	3
VCOM1051	Scale and Perspective	2
VCOM1030	Visual Design Fundamentals	3
VCOM1015	Layout I	2
VCOM1006	Color Theory and Applications	2
VCOM1001	Introduction to Visual Communications	2

First Year - Second Semester

VCOM1021 Introduction to Pho VCOM1400 Intro to QuarkXPre VCOM1410 Introduction to Illus VCOM2422 Print Processes II VCOM2685 Web Page Constru General Education		18
VCOM1021 Introduction to Pho VCOM1400 Intro to QuarkXPre VCOM1410 Introduction to Illus VCOM2422 Print Processes II	Elective**	4
VCOM1021 Introduction to Pho VCOM1400 Intro to QuarkXPre VCOM1410 Introduction to Illus	ction I	2
VCOM1021 Introduction to Pho VCOM1400 Intro to QuarkXPre		3
VCOM1021 Introduction to Pho	trator	2
	ss or VCOM1430	2
VCOMINIO INTRODUCTION TO	tography	3
VCOM1010 Introduction to Pho	toshop	2

Second Year - First Semester

	Total Credits	17
	Technical Elective*	6
VCOM2680	Introduction to Flash	2
VCOM2420	Advanced Computer Illustration	3
VCOM2415	Advanced Electronic Publishing	3
VCOM2400	Advanced Photoshop	3

Second Year - Second Semester

	Total Credits	19
	General Education Elective**	6
	General Education Elective (MnTC Goal 3 or	r 4)**4
ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
VCOM2730	Career Research Skills	1
VCOM2721	Portfolio for Graphic Design	2

TOTAL PROGRAM REQUIREMENTS 72

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

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

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

GRAPHIC DESIGN TECHNOLOGY - DIPLOMA

First Year - First Semester

	Total Credits	18
	Technical Elective*	2
VCOM1415	Typography Fundamentals	2
VCOM1060	Creative Problem Solving	3
VCOM1051	Scale and Perspective	2
VCOM1030	Visual Design Fundamentals	3
VCOM1015	Layout I	2
VCOM1006	Color Theory and Applications	2
VCOM1001	Introduction to Visual Communications	2

First Year - Second Semester

	Total Credits	17
SPEE1020	Interpersonal Communication	3
COML1400	Introduction to Computers	3
VCOM1422	Print Processes I	2
VCOM1410	Introduction to Illustrator	2
VCOM1400	Intro to QuarkXPress or VCOM1430	2
VCOM1021	Introduction to Photography	3
VCOM1010	Introduction to Photoshop	2

Second Year - First Semester

	Total Credits	16
VCOM2685	Web Page Construction I	2
VCOM2680	Introduction to Flash	2
VCOM2422	Print Processes II	3
VCOM2420	Advanced Computer Illustration	3
VCOM2415	Advanced Electronic Publishing	3
VCOM2400	Advanced Photoshop	3

Second Year - Second Semester

	Total Credits	13
	Technical Elective*	7
ENGL1150	Composition I (or ENGL1000)	3
VCOM2730	Career Research Skills	1
VCOM2721	Portfolio for Graphic Design	2

TOTAL PROGRAM REQUIREMENTS 64

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

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

MULTIMEDIA & WEB DESIGN

Delivery: Daytime or Evening Classes Start: Fall or Spring Semester, Full- or Part-Time Location: Rosemount Campus Multimedia & Web Page Design A.A.S. Degree. 72 cr.

Major Description

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

Work Environment

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

Potential Job Titles

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

Salary Data (payscale.com)

Web Designer

• Salary Range: \$32,231-\$46,526/year



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

First Year - First Semester

	Total Credits	18
VCOM1415	Typography Fundamentals	2
VCOM1051	Scale and Perspective	2
VCOM1032	Interactive Design Fundamentals	2
VCOM1030	Visual Design Fundamentals	3
VCOM1021	Introduction to Photography	3
VCOM1015	Layout I	2
VCOM1006	Color Theory and Applications	2
VCOM1001	Introduction to Visual Communications	2

First Year - Second Semester

	Total Credits	18
	General Education Elective**	4
COML1400	Introduction to Computers	3
VCOM2680	Introduction to Flash	2
VCOM1410	Introduction to Illustrator	2
VCOM1400	Intro to QuarkXPress or VCOM1430	2
VCOM1060	Creative Problem Solving	3
VCOM1010	Introduction to Photoshop	2

Second Year - First Semester

	Total Credits	18
	Technical Elective* 2	
ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
VCOM2700	Advanced Flash Animation 3	
VCOM2694	Advanced Multimedia Production 2	
VCOM2685	Web Page Construction I	2
VCOM2660	3D Modeling and Animation	3

Second Year - Second Semester

	Total Credits	18
	General Education Elective**	7
VCOM2730	Career Research Skills	1
VCOM2722	Portfolio for Multimedia and Web Page Design	2
VCOM2690	Web Page Construction II	3
VCOM2650	Multimedia Project Management	2
VCOM2605	Audio/Video for Multimedia	3

TOTAL PROGRAM REQUIREMENTS

72

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

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

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

PHOTOGRAPHIC IMAGING TECHNOLOGY

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

Major Description

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

Work Environment

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

Potential Job Titles

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

Salary Data

Average Wage: \$19.19/hourTop Earners: \$25.66/hour

Photographic Imaging Technology A.A.S. Degree 64 cr.
Photographic Imaging Technology Diploma32 cr.
Digital Imaging Technician Certificate24 cr.
Photographer Assistant Certificate 19 cr.

PHOTOGRAPHIC IMAGING TECHNOLOGY - A.A.S. DEGREE

First Year - First Semester

isic Darkroom Techniques chnical Elective* croduction to Computers	4 2 3
asic Darkroom Techniques	4 2
	4
ioto Ligitting recrimques	_
oto Lighting Techniques	2
roduction to Photography	3
roduction to Visual Communications	2
	roduction to Visual Communications roduction to Photography

First Year - Second Semester

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

Second Year - First Semester

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

Second Year - Second Semester

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

TOTAL PROGRAM REQUIREMENTS 64

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

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

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

PHOTOGRAPHIC IMAGING TECHNOLOGY - DIPLOMA

First Year - First Semester

	Total Credits	15
	General Education**	3
	Technical Elective*	5
VCOM1515	Photo Lighting Techniques	2
VCOM1021	Introduction to Photography	3
VCOM1001	Introduction to Visual Communications	2

First Year - Second Semester

VCOM1010Introduction to Photoshop2VCOM1525Basic Darkroom Techniques4VCOM1565Color Printing Systems4VCOM1570Portrait Photographer2VCOM1580Introduction to Digital Imaging2VCOM2581Photography Portfolio2VCOM2730Career Research Skills1		Total Credits	17
VCOM1525Basic Darkroom Techniques4VCOM1565Color Printing Systems4VCOM1570Portrait Photographer2VCOM1580Introduction to Digital Imaging2	VCOM2730	Career Research Skills	1
VCOM1525Basic Darkroom Techniques4VCOM1565Color Printing Systems4VCOM1570Portrait Photographer2	VCOM2581	Photography Portfolio	2
VCOM1525Basic Darkroom Techniques4VCOM1565Color Printing Systems4	VCOM1580	Introduction to Digital Imaging	2
VCOM1525 Basic Darkroom Techniques 4	VCOM1570	Portrait Photographer	2
	VCOM1565	Color Printing Systems	4
VCOM1010 Introduction to Photoshop 2	VCOM1525	Basic Darkroom Techniques	4
	VCOM1010	Introduction to Photoshop	2

TOTAL PROGRAM REQUIREMENTS 32

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

^{**} General Education - Select from SPEE1020, COML1400 or ENGL1150.



DIGITAL IMAGING TECHNICIAN - CERTIFICATE

First Year - First Semester

	Total Credits	14
	Technical Elective*	1
VCOM1580	Introduction to Digital Imaging	2
VCOM1410	Introduction to Illustrator	2
VCOM1430	Introduction to InDesign	2
VCOM1010	Introduction to Photoshop	2
VCOM1021	Introduction to Photography	3
VCOM1001	Introduction to Visual Communications	2

First Year - Second Semester

rirst tear -	Second Semester	
VCOM2520	Digital Photography	2
VCOM2551	Digital Studio Workflow I	2
VCOM2605	Audio/Visual for Presentations	3
VCOM2730	Career Research Skills	1
VCOM2500	Photography Portfolio	2
	Total Credits	10
	TOTAL PROGRAM REQUIREMENTS	24

PHOTOGRAPHER ASSISTANT - CERTIFICATE

First Year - First Semester

Portrait Photography	2
introduction to Photoshop	
Introduction to Photoshop	2
Photo Lighting Techniques	2
Photography Workshop	1
Introduction to Photography	3
	Photography Workshop Photo Lighting Techniques

First Year - Second Semester

	Total Credits	9
VCOM2730	Career Research Skills	1
VCOM2580	Photography Portfolio	2
VCOM2540	The Business of Photography	2
VCOM2520	Digital Photography	2
VCOM2510	Commercial Photography	2

TOTAL PROGRAM REQUIREMENTS

19

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

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

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

PHOTOGRAPHY

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

Major Description

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

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

Work Environment

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

Potential Job Titles

- · Advertising Photographer
- Forensic Photographer
- Photojournalist
- · Portrait Photographer
- Sports Photographer
- · Wedding Photographer
- Wildlife Photographer

Salary Data

Average Wage: \$27.94/hourTop Earners: \$41.08/hour



PHOTOGRAPHY - A.S. DEGREE

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

First Year - First Semester

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

First Year - Second Semester

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

Second Year - First Semester

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

Second Year - Second Semester

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

TOTAL PROGRAM REQUIREMENTS 64

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

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

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

WOOD FINISHING TECHNOLOGY

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

Major Description

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

Work Environment

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

Potential Job Titles

- · Furniture Restorer
- Furniture Finisher
- Commercial Finishing Technician
- Furniture Service Technician
- Furniture Restoration Specialist
- Wood Finisher

Salary Data

 Average Wage: \$18.13/hour Top Earners: \$24.29/hour



Wood Finishing Technology Diploma	6 cr.
Furniture Service Technician I Certificate	11 cr.
Furniture Service Technician II Certificate	9 cr.

First Year -	First Semester	
WOOD1004	Woodworking	3
WOOD1007	Methods of Fastening	3
WOOD1012	Color Theory	3
WOOD1015	Spot Repair I	3
WOOD1019	Spot Repair II	5
	Total Credits	17
First Vacr	Canada Camantar	
	Second Semester	
First Year -	Second Semester Wood and Finishing Technology	5
		5
WOOD1010	Wood and Finishing Technology	_
WOOD1010 WOOD1021	Wood and Finishing Technology Wood Refinishing	6 5
WOOD1010 WOOD1021 WOOD1026	Wood and Finishing Technology Wood Refinishing Advanced Finishing Techniques	6

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

FURNITURE SERVICE TECHNICIAN I - CERTIFICATE

Pending MnSCU Board Approval

First Year - First Semester

	Total Credits	11
WOOD1019	Spot Repair II	5
WOOD1015	Spot Repair I	3
WOOD1012	Color Theory	3

FURNITURE SERVICE TECHNICIAN II - CERTIFICATE

Pending MnSCLI Board Approval

First Year - First Semester

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

Health & Human Services



PROGRAMS OF STUDY

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

SERVICE FOR LIFE

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

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

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

TRAITS OF THE TRADE

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

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

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

Contact Us

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"Wherever the art of medicine is loved, there is also a love of humanity."

— Hippocrates —

CHILD DEVELOPMENT

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

Major Description

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

Work Environment

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

Potential Job Titles

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

Salary Data

Child Care

Average Wage: \$10.61/hourTop Earners: \$13.92/hour

Preschool Teacher

Average Wage: \$14.96/hourTop Earners: \$20.73/hour

Child Development A.S. Degree	
Child Development A.A.S. Degree	
Child Development Diploma	
Child Development Certificate	
Child Life Assistant A.A.S. Degree	
National Child Development Associate Certificate 10 cr.	

CHILD DEVELOPMENT - A.S. DEGREE

This degree is designed for students wishing to transfer to a fouryear institution to obtain an advanced degree.

First Year - First Semester

	Total Credits	17
	Technical Elective*	3
CDEV1230	Guidance and Early Childhood Environment	4
CDEV1220	Child Safety, Health, and Nutrition	4
CDEV1210	Foundations of Child Development I	3
CDEV1200	Prof. Relations in Early Childhood Careers	3

First Year - Second Semester

	Total Credits	16
SPEE1020	Interpersonal Communication	3
COML1400	Introduction to Computers	3
CDEV2320	Profiles of the Exceptional Child	3
CDEV1340	Planning and Implementing Curriculum	3
CDEV1320	Foundations of Child Development II	4

First Year - Summer Session

	Total Credits	3
CDEV1510	Internship	3

Second Year - First Semester

	Total Credits	15
	General Education Elective**	4
	General Education Elective (MnTC Goal 3)**	4
	General Education Elective (MnTC Goal 4)**	4
ENGL1150	Composition I	3

Second Year - Second Semester

	Total Credits	12
	General Education Elective**	9
CDEV2600	Professional Leadership	3

TOTAL PROGRAM REQUIREMENTS

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

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

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

CHILD DEVELOPMENT - A.A.S. DEGREE

First Year - First Semester

Technical Elective.	
Technical Elective*	2
Guidance and Early Childhood Environment	4
Child Safety, Health, and Nutrition	4
Foundations of Child Development I	3
Prof. Relations in Early Childhood Careers	3
F	Foundations of Child Development I Child Safety, Health, and Nutrition

First Year - Second Semester

	Total Credits	17
SPEE1020	Interpersonal Communication	3
	Technical Elective*	4
CDEV2320	Profiles of the Exceptional Child	3
CDEV1340	Planning and Implementing Curriculum	3
CDEV1320	Foundations of Child Development II	4

First Year - Summer Session

CDEV1510	Internship	3
	Total Credits	3

Second Year - First Semester

	Total Credits	15
	General Education Elective (MnTC Goal 3 or 4)**	3
ENGL1150	Composition I	3
COML1400	Introduction to Computers	3
CDEV2640	Program Planning	3
CDEV2330	Advanced Child Guidance	3

Second Year - Second Semester

	Total Credits	14
	General Education Elective**	8
CDEV2840	Practicum	3
CDEV2600	Professional Leadership	3

TOTAL PROGRAM REQUIREMENTS 65

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

CHILD DEVELOPMENT - DIPLOMA

First Year - First Semester

	Total Credits	17
ENGL1150	Composition I	3
CDEV1230	Guidance and Early Childhood Environment	4
CDEV1220	Child Safety, Health, and Nutrition	4
CDEV1210	Foundations of Child Development I	3
CDEV1200	Prof. Relations in Early Childhood Careers	3

First Year - Second Semester

	Interpersonal Communication	3
SPEE1020	Internersenal Communication	7
COML1400	Introduction to Computers	3
CDEV1510	Internship	3
CDEV1340	Planning and Implementing Curriculum	3
CDEV1320	Foundations of Child Development II	4

TOTAL PROGRAM REQUIREMENTS 33

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

CHILD DEVELOPMENT - CERTIFICATE

First Year - First Semester

CDEV1200 Prof. Relations in Early Childhood Careers 3 CDEV1210 Foundations of Child Development I 3 CDEV1220 Child Safety, Health, and Nutrition 4 CDEV1230 Guidance and Early Childhood Environment 4 ENGL1150 Composition I 3 Total Credits 17		TOTAL PROGRAM REQUIREMENTS	17
CDEV1210 Foundations of Child Development I 3 CDEV1220 Child Safety, Health, and Nutrition 4 CDEV1230 Guidance and Early Childhood Environment 4		Total Credits	17
CDEV1210 Foundations of Child Development I 3 CDEV1220 Child Safety, Health, and Nutrition 4	ENGL1150	Composition I	3
CDEV1210 Foundations of Child Development I 3	CDEV1230	Guidance and Early Childhood Environment	4
· · · · · · · · · · · · · · · · · · ·	CDEV1220	Child Safety, Health, and Nutrition	4
CDEV1200 Prof. Relations in Early Childhood Careers 3	CDEV1210	Foundations of Child Development I	3
	CDEV1200	Prof. Relations in Early Childhood Careers	3

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

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

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

CHILD LIFE ASSISTANT - A.A.S. DEGREE

First Year - First Semester

	Total Credits	16
HEAL1502	Medical Terminology	2
CDEV1230	Guidance and Early Childhood Environment	4
CDEV1220	Child Safety, Health, and Nutrition	4
CDEV1210	Foundations of Child Development I	3
CDEV1200	Prof. Relations in Early Childhood Careers	3

First Year - Second Semester

	Total Credits	15
SPEE1020	Interpersonal Communication	3
PSYC1300	Child/Adolescent Psychology	3
COML1400	Introduction to Computers	3
CDEV2320	Profiles of the Exceptional Child	3
CDEV1340	Planning and Implementing Curriculum	3

First Year - Summer Session

	Total Credits	4
CDEV2715	Sign language in Early Childhood	1
CDEV1510	Internship	3

Second Year - First Semester

	Total Credits	12
PSYC 1450	Death & Dying	2
SOCY1010	Marriage & the Family	3
BIOL1310	Introduction to Anatomy and Physiology	4
ENGL1150	Composition I	3

Spring Semester - Second Year

	TOTAL PROGRAM REQUIREMENTS	
	Total Credits	13
	Technical Elective	2
PHIL1350	Medical Ethics	3
MATS	(over 1000, except 1205)	4
CDEV2713	Culture, Family, and Providers	1
CDEV2600	Professional Leadership	3

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

NATIONAL CHILD DEVELOPMENT ASSOCIATE - CERTIFICATE

First Year - First Semester

	Total Credits	10
CDEV1230	Guidance and Early Childhood Environment	4
CDEV1210	Foundations of Child Development	3
CDEV1206	Parent and Professional Relations	2
CDEV1205	Professional Resources	1

TOTAL PROGRAM CREDITS 10

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



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

DENTAL ASSISTANT

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

Major Description

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

Work Environment

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

Potential Job Titles

- Certified Dental Assistant (CDA)
- Licensed Dental Assistant (LDA)
- Expanded Duty Dental Assistant
- Restorative Dental Assistant

Salary Data

Average Wage: \$20.94/hourTop Earners: \$25.70/hour



Dental Assistant A.A.S. Degree.	 	 64	4 cr.
Dental Assistant Diploma	 	 4	4 cr.

DENTAL ASSISTANT - A.A.S. DEGREE

First Year - First Semester

	Total Credits	10
SPEE1020	Interpersonal Communication	3
DENT1140	Dental Materials	3
DENT1130	Chairside Assisting I	3
DENT1120	Dental Health	2
DENT1110	Pre-Clinical Dental Assisting	3
DENT1100	Dental Science	4

First Year - Second Semester

DENT1250	Radiology	5
DENT1260	Expanded Functions	5
DENT1270	Chairside Assisting II	3
DENT1280	Dental Practice Management	2
COML1400	Introduction to Computers	3

18

First Year - Summer Session

Total Credits

	Total Credits	12
	General Education Elective**	4
DENT2970	Externship	8

Second Year - First Semester

ENGL1150	Composition I	3
	General Education Elective (MnTC Goal 3 or 4)**	4
	General Education Elective**	9
	Total Credits	16
	TOTAL PROGRAM REQUIREMENTS	64

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

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

DENTAL ASSISTANT - DIPLOMA

First Year - First Semester

	Total Credits	18
DENT1140	Dental Materials	3
DENT1130	Chairside Assisting I	3
DENT1120	Dental Health	2
DENT1110	Pre-Clinical Dental Assisting	3
DENT1100	Dental Science	4
COML1400	Introduction to Computers	3

First Year - Second Semester

	Total Credits	18
SPEE1020	Interpersonal Communication	3
DENT1280	Dental Practice Management	2
DENT1270	Chairside Assisting II	3
DENT1260	Expanded Functions	5
DENT1250	Radiology	5

First Year - Summer Session

	Total Credits	8
DENT2970	Externship	8

TOTAL PROGRAM REQUIREMENTS 44

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

EXERCISE & SPORT SCIENCE

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

Major Description

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

Work Environment

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

Potential Job Titles

- Coach
- Fitness Specialist
- Personal Trainer
- Group Fitness Instructor

Salary Data

Fitness Trainer

- Average Wage: \$14.01/hour
- Top Earners: \$20.30/hour



Exercise & Sport Science A.S. Degree	00 cr.
Exercise & Sport Science A.A.S. Degree	0 cr.
Personal Training Certificate	16 cr.
Group Fitness Certificate	16 cr.
Geriatric Health & Fitness Certificate	16 cr.
Advanced Personal Training Certificate	16 cr.
Community Coaching Certificate	17 cr.

EXERCISE & SPORT SCIENCE - A.S. DEGREE

Pending MnSCU Board Approval

This degree is designed for students wishing to transfer to a fouryear institution to obtain an advanced degree.

First Year - First Semester

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

First Year - Second Semester

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

Second Year - First Semester

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

Second Year - Second Semester

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

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

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

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

Pending MnSCU Board Approval

First Year - First Semester

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

First Year - Second Semester

	Total Credits	17
PSYC1100	General Psychology	3
	Technical Elective*	3
EXER1050	Nutrition for Health & Human Performance	3
EXER1025	Physical Conditioning	2
EXER1015	Personal Health and Wellness	3
ENGL1150	Composition I	3

Second Year - First Semester

Computer and Society Basics	1
Applied Exercise Physiology	3
Exercise for Special Populations	2
Personal Training and Exercise Leadership I	2
Anatomy and Physiology I	4
	Personal Training and Exercise Leadership I Exercise for Special Populations

Second Year - Second Semester

INTS1010	Job Seeking Skills	1
	Technical Elective*	3
EXER2975	Practicum	3
EXER2295	Social and Ethical Aspects of Sport	3
EXER2060	Personal Training and Exercise Leadership II	2
BIOL2010	Anatomy and Physiology II	4

TOTAL PROGRAM REQUIREMENTS 60

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

PERSONAL TRAINING - CERTIFICATE

First Year - First Semester

	Total Credits	16
SPEE1020	Interpersonal Communication	3
HEAL1101‡	Anatomy and Physiology	4
HEAL1000	First Aid/CPR †	1
EXER2975	Practicum	1
EXER2020	Personal Training and Exercise Leadership I	2
EXER1065	Psychology of Sport and Performance	3
EXER1020	Strength Training	2

TOTAL PROGRAM REQUIREMENTS 16

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

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

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

GROUP FITNESS - CERTIFICATE

First Year - First Semester

HEAL1101‡	First Aid/CPR [†] Anatomy and Physiology	1 4
	First Aid/CPR †	1
HEAL1000		
EXER2975	Practicum	2
EXER2250	Group Fitness Instruction	2
EXER2020	Personal Training and Exercise Leadership I	2
EXER1065	Psychology of Sport and Performance	3
EXER1020	Strength Training	2

TOTAL PROGRAM REQUIREMENTS 16

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

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

GERIATRIC HEALTH & FITNESS - CERTIFICATE

First Year - First Semester

	Total Credits	16
HEAL1101‡	Anatomy and Physiology	4
HEAL1000	First Aid/CPR †	1
EXER2280	Health and Aging	3
EXER2250	Group Fitness Instruction	2
EXER2090	Exercise for Special Populations	2
EXER2020	Personal Training and Exercise Leadership I	2
EXER1020	Strength Training	2

TOTAL PROGRAM REQUIREMENTS 16

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

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

ADVANCED PERSONAL TRAINING - CERTIFICATE

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

First Year - First Semester

	Total Credits	16
MKTC1000	Principles of Marketing	3
EXER2125	Applied Biomechanics & Movement Anatomy	3
EXER2060	Personal Training and Exercise Leadership II	2
EXER1050	Nutrition for Health and Human Performance	3
EXER1025	Physical Conditioning	2
ENTR1650	Selling Strategies for the Entrepreneur	3

TOTAL PROGRAM REQUIREMENTS 16

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

COMMUNITY COACHING - CERTIFICATE

First Year - First Semester

EXER1045	Organization and Management of Sports	3
EXER1200	Team and Individual Games	2
EXER2060	Personal Training and Exercise Leadership II	2
EXER2225	Theory of Coaching	2
EXER2235	Introduction to Athletic Training	3
EXER2975	Practicum	2
EMRG1017	First Responder	3
	Total Credits	17

TOTAL PROGRAM REQUIREMENTS 17

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



MEDICAL ASSISTANT

Delivery: Daytime or Online Classes Start: Fall Semester (classroom) or Spring Semester (online enhanced), Full-Time Recommended Location: Rosemount Campus

Major Description

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

Work Environment

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

Potential Job Titles

- · Certified Medical Assistant
- Medical Assistant
- Clinical Assistant

Salary Data

Average Wage: \$16.60/hourTop Earners: \$20.59/hour



Medical Assistant A.A.S. Degree	62	Cr.
Medical Assistant Diploma	42	Cr.

MEDICAL ASSISTANT - A.A.S. DEGREE

First Year - First Semester

	Total Credits	17
OFFC1130	MS Word I	2
MDAS1140	Phlebotomy	1
MDAS1130	Clinical Procedures I	3
MDAS1123	Laboratory Skills I	5
HEAL1502	Medical Terminology	2
HEAL1101	Anatomy and Physiology	4

First Year - Second Semester

	Total Credits	17
MDAS1701	Pharmacology & Math for Medical Assistants	4
MDAS1270	Administrative Procedures	3
MDAS1230	Clinical Procedures II	3
MDAS1222	Laboratory Skills II	4
MDAS1210	Disease/Medical Treatment & Nutrition	3

First Year - Summer Session

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

Second Year - First Semester

	Total Credits	12
	General Education Elective**	3
SPEE1020	Interpersonal Communication	3
ENGL1150	Composition I	3
COML1400	Introduction to Computers	3

Second Year - Second Semester

General Education Elective**	4
Total Credits	8

General Education Elective (MnTC Goal 3 or 4)** 4

TOTAL PROGRAM REQUIREMENTS

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

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

MEDICAL ASSISTANT - DIPLOMA

First Year - First Semester

	Total Credits	17
OFFC1130	MS Word I	2
MDAS1140	Phlebotomy	1
MDAS1130	Clinical Procedures I	3
MDAS1123	Laboratory Skills I	5
HEAL1502	Medical Terminology	2
HEAL1101	Anatomy and Physiology	4

First Year - Second Semester

MDAS1210	Disease/Medical Treatment & Nutrition	3
MDAS1222	Laboratory Skills II	4
MDAS1230	Clinical Procedures II	3
MDAS1270	Administrative Procedures	3
MDAS1701	Pharmacology & Math for Medical Assistants	4

Total Credits 17

First Year - Summer Session

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

TOTAL PROGRAM REQUIREMENTS 42

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

NURSING ASSISTANT

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

Nursing Assistant Certificate 5 cr.

Major Description

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

Work Environment

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

Potential Job Titles

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

Salary Data

• Average Wage: \$14.61/hour

• Top Earners: \$18.78/hour

NURSING ASSISTANT - CERTIFICATE

First Year - First Semester

	Total Credits	5
HEAL1060	Nursing Assistant	5

TOTAL PROGRAM REQUIREMENTS 5



PRACTICAL NURSING

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

Major Description

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

Work Environment

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

Potential Job Titles

- Clinic Nurse
- · Charge Nurse
- Home Health Nurse
- Nursing Technician
- Office Nurse

Salary Data

Average Wage: \$20.87/hourTop Earners: \$25.37/hour



Practical Nursing A.A.S. Degree	63 cr.
Practical Nursing Diploma	.51 cr.

PRACTICAL NURSING - A.A.S. DEGREE

Pending MnSCU Board Approval

Pre-Nursing

	Total Credits	15
ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
PSYC1350	Lifespan Development	4
COSO1000	Computer and Society Basics	1
BIOL1500	General Biology	4

First Year - First Semester

Medical Ethics	3
Anatomy and Physiology I	4
Microbiology	4
Foundations of Nursing Practice I	2
Nutrition and Diet Therapy	2
Health Career Math	1
	Nutrition and Diet Therapy Foundations of Nursing Practice I

First Year - Summer Session

	Total Credits	4
BIOL2010	Anatomy and Physiology II	4

First Year - Second Semester

	Total Credits	16
PNSG1540	Clinical Practice I	2
PNSG1530	Beginning Clinical	3
PNSG1500	Adult Health Nursing II	3
PNSG1400	Adult Health Nursing I	4
PNSG1350	Pharmacology	2
PNSG1100	Foundations of Nursing Practice II	2

Second Year - First Semester

	Total Credits	12
PNSG1805	Maternal and Child Health	2
PNSG1580	Clinical Practice IV	3
PNSG1570	Clinical Practice III	2
PNSG1560	Clinical Practice II	3
PNSG1750	Mental Health Nursing	2

TOTAL PROGRAM REQUIREMENTS

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

The transfer agreement with Metropolitan State University (LPN to BSN) also requires the following: MATS1251 Statistics - 4 credits, MnTC Goal 5 - 3 credits. 63

PRACTICAL NURSING - DIPLOMA

Pending MnSCU Board Approval

Pre-Nursing

	Total Credits	11
ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3
PSYC1350	Lifespan Development	4
COSO1000	Computer and Society Basics	1

First Year - First Semester

	Total Credits	
PHIL1350	Medical Ethics	3
PNSG1000	Foundations of Nursing Practice I	2
PNSG1250	Nutrition and Diet Therapy	2
HEAL1150	Health Career Math	1
HEAL1101	Anatomy and Physiology	4

First Year - Second Semester

	Total Credits	16
PNSG1540	Clinical Practice I	2
PNSG1530	Beginning Clinical	3
PNSG1500	Adult Health Nursing II	3
PNSG1400	Adult Health Nursing I	4
PNSG1350	Pharmacology	2
PNSG1100	Foundations of Nursing Practice II	2

Second Year - First Semester

Maternal and Child Health	2
Clinical Practice IV	3
Clinical Practice III	2
Clinical Practice II	3
Mental Health Nursing	2
	Clinical Practice II Clinical Practice III

TOTAL PROGRAM REQUIREMENTS 51

This is a sample course sequence resulting in a diploma.

Please consult your program advisor regarding your academic plans.

Technical Careers



PROGRAMS OF STUDY

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

TECHIES UNITE

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

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

TRAITS OF THE TRADE

The best technicians share these essential qualities:

- · Inventive nature
- · Commitment to excellence
- Attention to detail
- Powerful work ethic
- Safety consciousness
- Knack for concentration
- Adaptability
- Willingness to learn
- Superior motor skills
- · Common sense
- Mathematical aptitude
- Gift for spatial perception

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

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"Where there is the necessary technical skill to move mountains, there is no need for the faith that moves mountains."

— Eric Hoffer —

BIOMEDICAL EQUIPMENT TECHNOLOGY

Delivery: Evening Classes Start: Fall Semester, Full-Time Recommended Location: Rosemount Campus Biomedical Equipment Technology A.A.S. Degree 69 cr. Biomedical Equipment Technology Certificate 26 cr.

Major Description

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

Work Environment

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

Potential Job Titles

- Biomedical Electronics Technician
- Biomedical Engineering Technician
- Biomedical Equipment Specialist
- · Electromedical Equipment Repairer
- Medical Equipment Repairer
- Field Service Technician

Salary Data

Average Wage: \$25.02/hourTop Earners: \$33.13/hour



BIOMEDICAL EQUIPMENT TECHNOLOGY - A.A.S. DEGREE

First Year - First Semester

	Total Credits	17
COML1400	Introduction to Computers	3
ISTC1040	Network Systems I	3
BMET1123	AC Electricity	3
BMET1116	Solid State Electronics and Lab	5
BMET1112	DC Electricity	3

First Year - Second Semester

	Total Credits	15
INTS1000	College Success Skills	2
SPEE1020	Interpersonal Communication	3
ISTC2005	Network System II	3
ISTC1010	Microcomputer Maintenance	3
BMET1530	Digital and Micro Processors	3
	the Health Care Environment	1
BMET1136	Managing Customer Satisfaction in	

Second Year - First Semester

	Total Credits	18
ENGL1150	Composition I	3
BIOL1310	Introduction to Anatomy and Physiology	4
ISTC2010	Network Systems III	3
HEAL1502	Medical Terminology	2
BMET1241	Mechanical Systems	3
BMET1121	Administrative Functions	3

Second Year - Second Semester

BMET1221 Ins BMET1231 Ins BMET2970 Bio EMRG1017 Fir	tal Credits	19
BMET1221 Ins BMET1231 Ins BMET2970 Bio	twork Systems IV	3
BMET1221 Ins BMET1231 Ins	st Responder	3
BMET1221 Ins	omedical Equipment Tech. Internship	2
	strumentation II	4
DIYIETIII4 VVI	strumentation I	4
BMET1114 Wi	ireless Communication	1
BMET1110 Int	roduction to Biomedical Technology	3

TOTAL PROGRAM REQUIREMENTS 69

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

BIOMEDICAL EQUIPMENT TECHNOLOGY - CERTIFICATE

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

First Year - First Semester

	Total Credits	13
BIOL1310	Introduction to Anatomy and Physiology	4
HEAL1502	Medical Terminology	2
BMET1241	Mechanical Systems	3
	the Health Care Environment	1
BMET1136	Managing Customer Satisfaction in	
BMET1121	Administrative Functions	3

First Year - Second Semester

	Total Credits	13
BMET2970	Biomedical Equipment Tech. Internship	2
BMET1231	Instrumentation II	4
BMET1221	Instrumentation I	4
BMET1110	Introduction to Biomedical Technology	3

TOTAL PROGRAM REQUIREMENTS 26

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

CIVIL ENGINEERING TECHNOLOGY

Delivery: Daytime Classes Start: Fall Semester, Full-Time Location: Hennepin Technical College (Eden Prairie Campus) Fall 2010 Dakota County Technical College (Rosemount Campus) Fall 2011

Major Description

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

Work Environment

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

Potential Job Titles

- Civil Engineering Technician
- · Civil Engineering Designer
- Civil Engineering Technical Analyst

Salary Data (payscale.com)

• Salary Range: \$13.90-\$19.76/hour



CIVIL ENGINEERING TECHNOLOGY - A.A.S. DEGREE

Pending MnSCU Approval

First Year - First Semester

	Total Credits	17
COML1400	Intro to Computers	3
CIVL1160	Project Management	2
CIVL1150	Introduction to GIS	3
CIVL1140	Civil Engineering/Government	2
CIVL1130	Beginning Surveying	3
CIVL1120	Basic CAD	3
CIVL1110	Introduction to Civil Engineering Technology	1

First Year - Second Semester

	Total Credits	19
MATS1300	College Algebra	4
CIVL1240	GPS and Construction Staking	3
CIVL1230	Intermediate Surveying	4
CIVL1220	Civil Engineering Technology Drafting	4
CIVL1210	Materials Testing	4

Second Year - First Semester

	Total Credits	17
SPEE1020	Interpersonal Communication	3
CIVL2150	Eco-Sensitive Design	3
CIVL2140	Specifications and Contract Administration	2
CIVL2130	Soil Mechanics Survey	3
CIVL2120	Construction Inspection	3
CIVL2110	Internship	3

Second Year - Second Semester

Composition I College Trigonometry	3 2
S	3
2000.1000.19	_
Estimating	.3
Hydrology and Storm Water Management	3
Properties of Construction Materials	3
Road Design, Grading	
Project Design: Utilities Design,	5
	Road Design, Grading Properties of Construction Materials Hydrology and Storm Water Management

TOTAL PROGRAM CREDITS 72

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

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

CONCRETE & MASONRY

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

Concrete	& Masonry A.A.S. Degree	67	Cr.
Concrete	& Masonry Diploma	33	cr.

Major Description

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

Work Environment

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

Potential Job Titles

- · Concrete Finisher
- Cementer
- Bricklayer
- · Block Worker
- Stonemason
- · Tile Setter

Salary Data

Average Wage: \$25.66/hourTop Earners: \$34.77/hour



CONCRETE & MASONRY - A.A.S. DEGREE

First Year - First Semester

	Total Credits	18
CONC1605	Math for Masons	2
CONC1604	Foundations, Concrete, & Safety for Masons	
CONC1602	Shop II: Brick and Block Construction	4
CONC1601	Shop I: Site Preparation for Construction	6
CONC1600	Shop Theory	2

First Year - Second Semester

	Total Credits	18
COML1400	Introduction to Computers	3
CONC1615	Blueprint Reading Estimating	2
CONC1614	Shop IV: Integrated Concrete Systems	4
CONC1613	Shop III: Advanced. Brick & Block Construction	4
	Diagnosis, Prevention, & Resolution	2
CONC1610	Concrete Problems:	
CONC1606	Testing of Mortar and Concrete	3

Second Year - First Semester

	Total Credits	15
	General Education Elective (MnTC Goal 3 or 4)**	4
SPEE1020	Interpersonal Communication	
SMGT1000	Principles of Supervision	3
OFFC1340	Quick Books Pro Basics	2
ENTR1860	Business Plan Development	3

Second Year - Second Semester

occoma ico	ii occoria ocinicator	
SMGT1028	Management Effectiveness	3
SMGT1033	Business Law and Ethics	3
ENGL1150	Composition I	3
	General Education Elective**	7
	Total Credits	16
	TOTAL PROGRAM REQUIREMENTS	67

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

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

CONCRETE & MASONRY - DIPLOMA

First Year - First Semester

	Total Credits	18
CONC1605	Math for Masons	2
CONC1604	Foundations, Concrete, & Safety for Masons	4
CONC1602	Shop II: Brick and Block Construction	4
CONC1601	Shop I: Site Preparation for Construction	6
CONC1600	Shop Theory	2

First Year - Second Semester

	Total Credits	15
CONC1615	Blueprint Reading Estimating	2
CONC1614	Shop IV: Integrated Concrete Systems	4
CONC1613	Shop III: Adv. Brick & Block Construction	4
	Diagnosis, Prevention, & Resolution	2
CONC1610	Concrete Problems:	
CONC1606	Testing of Mortar and Concrete	3

TOTAL PROGRAM REQUIREMENTS 33

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

ELECTRICAL CONSTRUCTION & MAINTENANCE TECHNOLOGY

Delivery: Daytime Classes Start: Fall or Spring Semester, Full-Time Recommended Location: Rosemount Campus Electrical Construction & Maintenance A.A.S. Degree 83 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, private companies and plants, and manufacturers of electrical equipment.

Potential Job Titles

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

Salary Data

Average Wage: \$30.30/hourTop Earners: \$40.81/hour



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

ELEC1110	D. C. Electricity Theory and Lab	
ELEC1120	A. C. Electricity Theory and Lab	
ELEC1130	National Electrical Code I	
ELEC1140	Blueprint Reading for Technicians	
MATS1205	Math for Electricians	
COML1400	Introduction to Computers	
	Total Credits	18
First Year -	Second Semester	
ELEC1210	Analog/ Digital Electronics Theory	
ELEC1220	Analog/ Digital Electronics Lab	
ELEC1230	Construction Skills & Intro to Wiring Theory	
ELEC1240	Construction Skills & Intro to Wiring Lab	(
SPEE1020	Interpersonal Communication	
	Total Credits	1
First Year -	Summer Session	
ENGL1150	Composition I	
	General Education Elective**	
	Total Credits	
Second Yea ELEC2110 ELEC2120	er - First Semester Electrical Apparatus Theory Electrical Apparatus Lab	
ELEC2131	Programmable Logic Controllers Theory	
ELEC2141	Programmable Logic Controllers Lab	
ELECZ141		
ELEC2141	General Education Elective**	
ELECZ141	General Education Elective** Total Credits	
Second Yea	Total Credits ar - Second Semester	18
Second Yea	Total Credits ar - Second Semester National Electrical Code II	18
Second Yea ELEC2210 ELEC2220	Total Credits ar - Second Semester National Electrical Code II Electrical/Electronic Controls & Systems Theo	18
Second Yea ELEC2210 ELEC2220 ELEC2230	Total Credits ar - Second Semester National Electrical Code II Electrical/Electronic Controls & Systems Theo Electrical/Electronic Controls & Systems Lab	18
Second Yea ELEC2210 ELEC2220 ELEC2230 ELEC2241	Total Credits ar - Second Semester National Electrical Code II Electrical/Electronic Controls & Systems Theo Electrical/Electronic Controls & Systems Lab Industrial & Maintenance Wiring Theory/Lab	18
Second Yea ELEC2210 ELEC2220 ELEC2230 ELEC2241 ELEC2251	Total Credits ar - Second Semester National Electrical Code II Electrical/Electronic Controls & Systems Theo Electrical/Electronic Controls & Systems Lab Industrial & Maintenance Wiring Theory/Lab Commercial Wiring Theory and Lab	18
Second Yea ELEC2210 ELEC2220 ELEC2230 ELEC2241 ELEC2251	Total Credits ar - Second Semester National Electrical Code II Electrical/Electronic Controls & Systems Theo Electrical/Electronic Controls & Systems Lab Industrial & Maintenance Wiring Theory/Lab Commercial Wiring Theory and Lab Heating, Ventilation, and	18
Second Yea ELEC2210 ELEC2220 ELEC2230 ELEC2241 ELEC2251	Total Credits ar - Second Semester National Electrical Code II Electrical/Electronic Controls & Systems Theo Electrical/Electronic Controls & Systems Lab Industrial & Maintenance Wiring Theory/Lab Commercial Wiring Theory and Lab Heating, Ventilation, and Air Conditioning Wiring Theory and Lab	1ii
Second Yea ELEC2210 ELEC2220 ELEC2230 ELEC2241 ELEC2251 ELEC2260	Total Credits ar - Second Semester National Electrical Code II Electrical/Electronic Controls & Systems Theo Electrical/Electronic Controls & Systems Lab Industrial & Maintenance Wiring Theory/Lab Commercial Wiring Theory and Lab Heating, Ventilation, and Air Conditioning Wiring Theory and Lab Total Credits	18
Second Yea ELEC2210 ELEC2220 ELEC2230 ELEC2241 ELEC2251 ELEC2260	Total Credits ar - Second Semester National Electrical Code II Electrical/Electronic Controls & Systems Theo Electrical/Electronic Controls & Systems Lab Industrial & Maintenance Wiring Theory/Lab Commercial Wiring Theory and Lab Heating, Ventilation, and Air Conditioning Wiring Theory and Lab Total Credits ession - Second Year	1i
Second Yea ELEC2210 ELEC2220 ELEC2230 ELEC2241 ELEC2251 ELEC2260	Total Credits ar - Second Semester National Electrical Code II Electrical/Electronic Controls & Systems Theo Electrical/Electronic Controls & Systems Lab Industrial & Maintenance Wiring Theory/Lab Commercial Wiring Theory and Lab Heating, Ventilation, and Air Conditioning Wiring Theory and Lab Total Credits ession - Second Year General Education Elective (MnTC Goal 3 or 4)	18 20 20 21 21 21 21 21 21 21 21 21 21
Second Yea ELEC2210 ELEC2220 ELEC2230 ELEC2241 ELEC2251 ELEC2260	Total Credits ar - Second Semester National Electrical Code II Electrical/Electronic Controls & Systems Theo Electrical/Electronic Controls & Systems Lab Industrial & Maintenance Wiring Theory/Lab Commercial Wiring Theory and Lab Heating, Ventilation, and Air Conditioning Wiring Theory and Lab Total Credits ession - Second Year	n:
Second Yea ELEC2210 ELEC2220 ELEC2230 ELEC2241 ELEC2251 ELEC2260	Total Credits ar - Second Semester National Electrical Code II Electrical/Electronic Controls & Systems Theo Electrical/Electronic Controls & Systems Lab Industrial & Maintenance Wiring Theory/Lab Commercial Wiring Theory and Lab Heating, Ventilation, and Air Conditioning Wiring Theory and Lab Total Credits ession - Second Year General Education Elective (MnTC Goal 3 or 4)	1: ory 1:

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

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

ELECTRICAL CONSTRUCTION & MAINTENANCE TECHNOLOGY - DIPLOMA

			_
First	Year	- First	Semester

	Total Credits	18
COML1400	Introduction to Computers	3
MATS1205	Math for Electricians	3
ELEC1140	Blueprint Reading for Technicians	3
ELEC1130	National Electrical Code I	3
ELEC1120	A. C. Electricity Theory and Lab	3
ELEC1110	D. C. Electricity Theory and Lab	3

First Year - Second Semester

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

Second Year - First Semester

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

Second Year - Second Semester

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

TOTAL PROGRAM REQUIREMENTS 72

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

ELECTRICAL LINEWORKER

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

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 Lineman
- Line Crewman
- Electric Power Line Installer
- · Line Erector
- · Line Installer-Repairer
- Power Lineman

Salary Data

Average Wage: \$31.41/hourTop Earners: \$40.04/hour



ELECTRICAL LINEWORKER - A.A.S. DEGREE

	8: 1:1 1: 1	
ELLW1110 ELLW1120	Distribution I Utility Equipment and Tools	4
LLLVVIIZO	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
COML1400	Introduction to Computers	3
	Total Credits	19
	Spring Semester	
ELLW1162	Transformers II	
ELLW1162 ELLW1170	Transformers II Line Construction and Maintenance A	4
ELLW1162 ELLW1170 ELLW1172	Transformers II Line Construction and Maintenance A Line Construction and Maintenance B	4 4
ELLW1162 ELLW1170	Transformers II Line Construction and Maintenance A	4
ELLW1162 ELLW1170 ELLW1172	Transformers II Line Construction and Maintenance A Line Construction and Maintenance B	4 4 2 1
ELLW1162 ELLW1170 ELLW1172 ELLW1180	Transformers II Line Construction and Maintenance A Line Construction and Maintenance B Underground Cable and Fault Locating	4

First Year - Summer Session

	Total Credits	17
	General Education Elective**	7
	General Education Elective (MnTC Goal 3 or 4)**	4
ENGL1150	Composition I	3
SPEE1020	Interpersonal Communication	3

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

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

ELECTRICAL LINEWORKER - DIPLOMA

July Start

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

First Year - Fall Semester

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

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
ELLW1170 Line Construction and Maintenance A 4 ELLW1172 Line Construction and Maintenance B 4 ELLW1180 Underground Cable and Fault Locating 2	HEAL1030	Emergency Care Technical Trades	3
ELLW1170 Line Construction and Maintenance A 4 ELLW1172 Line Construction and Maintenance B 4	ELLW1185	Electrical Industry Search Skills	1
ELLW1170 Line Construction and Maintenance A 4	ELLW1180	Underground Cable and Fault Locating	2
	ELLW1172	Line Construction and Maintenance B	4
ELLW1162 Transformers II 4	ELLW1170	Line Construction and Maintenance A	4
	ELLW1162	Transformers II	4

TOTAL PROGRAM REQUIREMENTS 43

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

^{**} General Education - Select from SPEE1020, COML1400, ENGL1000 or ENGL1150.

NANOSCIENCE TECHNOLOGY

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

Major Description

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

Work Environment

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

Potential Job Titles

- Nanotechnologist
- Nanoscience Technician
- Nanoelectronics Expert
- Nanobiotech Researcher
- Nanoscale Fabrication Technician
- · Nanomaterials Research Associate

Salary Data (Small Times survey)

Average Salary (Global): \$42,662/year



NANOSCIENCE TECHNOLOGY - A.A.S. DEGREE

First Year - First Semester

BIOL1500 General Biology COML1400 Introduction to Computers		Total Crodits	10
PHYS1100 College Physics I BIOL1500 General Biology	MATS1300	College Algebra	4
PHYS1100 College Physics I	COML1400	Introduction to Computers	3
	BIOL1500	General Biology	4
NANO1100 Fundamentals of Nanoscience I	PHYS1100	College Physics I	4
	NANO1100	Fundamentals of Nanoscience I	3

First Year - Second Semester

	Total Credits	19
SPEE1020	Interpersonal Communication	3
PHYS1200	College Physics II	4
MATS1251	Statistics	4
CHEM1500	Introduction to Chemistry	4
NAN01210	Computer Simulation	1
NAN01200	Fundamentals of Nanoscience II	3

Second Year - First Semester

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

Second Year - Second Semester

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

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

TOTAL PROGRAM REQUIREMENTS

NUCLEAR ENERGY MAINTENANCE TECHNICIAN

Delivery: Daytime Classes Start: Fall Semester, Full-Time Location: Rosemount Campus Nuclear Energy Maintenance Tech. A.A.S. Degree............... 60 cr. Nuclear Energy Maintenance Tech. Diploma...... Coming Soon

Major Description

This program trains students as nuclear energy maintenance technicians. Graduates will have the skills and knowledge necessary to obtain entry-level employment with strong potential for advancement in the nuclear energy industry. The program utilizes the Uniform Curriculum Guide, which was developed as part of an industry-wide workforce strategy to standardize curriculum and increase the efficiency of new, qualified nuclear workers focused on maintenance and non-licensed operations.

Work Environment

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

Potential Job Titles

- · Nuclear Technician
- · Nuclear Technology Specialist
- Nuclear Energy Maintenance Technician

Salary Data

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



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

First Year - First Semester

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

First Year - Second Semester

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

Second Year - First Semester

Total Credits	15
Process Controls/Instrumentation	3
Hydraulics	3
Pneumatics	3
Programmable Logic Controls Fundamentals	3
Mechanical Fundamentals for Process Control	3

Second Year - Second Semester

Total Credits	15
General Education Elective**	2
Print Reading	3
Nuclear Energy	10

TOTAL PROGRAM REQUIREMENTS 60

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

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

WELDING TECHNOLOGY

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

Welding Diploma......32 cr.

Major Description

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

Work Environment

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

Potential Job Titles

- Arc Welder
- · Wire Feed Welder
- · Aluminum Welder
- Electric Spot Welder
- Tig Welder
- Oxyacetylene Welder
- Welding Specialist

Salary Data

Average Wage: \$20.27/hourTop Earners: \$25.61/hour

WELDING TECHNOLOGY - DIPLOMA

First Year - First Semester

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

First Year - Second Semester

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

TOTAL PROGRAM REQUIREMENTS 32

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

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



Transportation Careers



PROGRAMS OF STUDY

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

WHEELS IN MOTION

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

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

TRAITS OF THE TRADE

People drawn to careers in the transportation fields are typically:

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

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

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"Shutting off the thought process is not rejuvenating; the mind is like a car battery – it recharges by running."

— Bill Watterson —

AUTO BODY COLLISION TECHNOLOGY

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

Major Description

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

Work Environment

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

Potential Job Titles

- · Collision Repair Technician
- Detailer
- Estimator
- · Glass Installer
- Paint Prepper
- Paint Technician

Salary Data

Average Wage: \$24.56/hourTop Earners: \$36.80/hour



Auto Body Collision Technology A.A.S. Degree	'2 cr.
Auto Body Collision Technology Diploma 6	4 cr.
Body Technician Certificate2	8 cr.
Paint Prep Certificate	21 cr.
Estimator Certificate	4 cr.

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

First Year - First Semester

	Total Credits	18
SPEE1020	Interpersonal Communication	3
ABCT1150	Reconditioning and Detailing	2
ABCT1142	Glass, Trim and Hardware	4
ABCT1130	Refinishing Preparation I	2
ABCT1120	Sheet Metal Repair	5
ABCT1111	Collision Repair Welding I	2

First Year - Second Semester

	Total Credits	
	General Education Elective (MnTC Goal 3 or 4)**	4
ENGL1150	Composition I	3
ABCT1230	Auto Body Plastic Repair	2
ABCT1216	Refinishing Application	5
ABCT1214	Refinishing Preparation II	3
ABCT1212	Collision Repair Welding II	2

Second Year - First Semester

	Total Credits	17
	General Education Elective**	3
ABCT2108	Unibody/Frame/Wheel Alignment I	4
ABCT2106	Collision Damage Repair/Replacement	6
ABCT2102	Shop Management and Estimating	2
ABCT2100	Body Electrical	2

Second Year - Second Semester

	Total Credits	18
	General Education Elective**	7
ABCT2970	Autobody Internship	2
ABCT2230	Body Mechanical and Air Conditioning	3
ABCT2212	Unibody/Frame/Wheel Alignment II	6

TOTAL PROGRAM REQUIREMENTS 72

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

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

AUTO BODY COLLISION TECHNOLOGY - DIPLOMA

First Year - First Semester

	Total Credits	18
SPEE1020	Interpersonal Communication	3
ABCT1150	Reconditioning and Detailing	2
ABCT1142	Glass, Trim and Hardware	4
ABCT1130	Refinishing Preparation I	2
ABCT1120	Sheet Metal Repair	5
ABCT1111	Collision Repair Welding I	2

First Year - Second Semester

	Total Credits	15
ENGL1000	Applied Business Writing (or ENGL1150)	3
ABCT1230	Auto Body Plastic Repair	2
ABCT1216	Refinishing Application	5
ABCT1214	Refinishing Preparation II	3
ABCT1212	Collision Repair Welding II	2

Second Year - First Semester

ABCT2100 Body Electrical 2 ABCT2102 Shop Management and Estimating 2 ABCT2106 Collision Damage Repair/Replacement 6 ABCT2108 Unibody/Frame/Wheel Alignment I General Education Elective** 3		Total Credits	17
ABCT2102 Shop Management and Estimating 2 ABCT2106 Collision Damage Repair/Replacement 6		General Education Elective**	3
ABCT2102 Shop Management and Estimating 2	ABCT2108	Unibody/Frame/Wheel Alignment I	4
•	ABCT2106	Collision Damage Repair/Replacement	6
ABCT2100 Body Electrical 2	ABCT2102	Shop Management and Estimating	2
	ABCT2100	Body Electrical	2

Second Year - Second Semester

	Total Credits	14
ABCT2970	Autobody Internship	5
ABCT2230	Body Mechanical and Air Conditioning	3
ABCT2212	Unibody/Frame/Wheel Alignment II	6

TOTAL PROGRAM REQUIREMENTS 64

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

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

BODY TECHNICIAN - CERTIFICATE

First Year - First Semester

ABCT1111 Collision Repair Welding I ABCT1120 Sheet Metal Repair ABCT1142 Glass, Trim and Hardware ABCT1212 Collision Repair Welding II		Total Credits	13
ABCT1120 Sheet Metal Repair	ABCT1212	Collision Repair Welding II	2
	ABCT1142	Glass, Trim and Hardware	4
ABCT1111 Collision Repair Welding I	ABCT1120	Sheet Metal Repair	5
	ABCT1111	Collision Repair Welding I	2

First Year - Second Semester

		Total Credits	15
ABCT2106 Collision Damage Repair/Replacement	ABCT2230	Body Mechanical and Air Conditioning	3
•	ABCT2108	Unibody/Frame/Wheel Alignment I	4
ABC12100 Body Electrical	ABCT2106	Collision Damage Repair/Replacement	6
ADCT2100 Dady Flactrical	ABCT2100	Body Electrical	2

TOTAL PROGRAM REQUIREMENTS 28

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

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PAINT PREPARATION - CERTIFICATE

First Year - First Semester

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

TOTAL PROGRAM REQUIREMENTS 21

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

ESTIMATOR - CERTIFICATE

First Year - First Semester

	Total Credits	14
	General Education**	3
ABCT2108	Unibody/Frame/Wheel Alignment I	4
ABCT2102	Shop Management and Estimating	2
ABCT1120	Sheet Metal Repair	5

TOTAL PROGRAM REQUIREMENTS

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

^{**} General Education - Select from SPEE1020, COML1400 or ENGL1150.

^{**} General Education - Select from SPEE1020, COML1400 or ENGL1150.

AUTOMOTIVE TECHNICIAN

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

Major Description

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

Work Environment

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

Potential Job Titles

- Automobile Mechanic
- · Automobile Service Advisor
- Automotive Repair Technician
- Automotive Technician
- Auto Mechanic
- · Automotive Engineer

Salary Data

Average Wage: \$20.35/hourTop Earners: \$30.78/hour



Automotive Technician A.A.S. Degree	72 cr.
Automotive Technician Diploma	65 cr.
Driveability Certificate	18 cr.
Engines & Transmission Certificate	18 cr.
Electrical, Electronics, and HVAC Certificate	18 cr.
Brakes, Suspension and Driveline Certificate	18 cr.

AUTOMOTIVE TECHNICIAN - A.A.S. DEGREE

First Year - First Semester

AUTM2025 Brakes 3 AUTM2032 Manual Transaxle, Clutches, Transfer Case and Differentials AUTM2100 Basic Electricity 1		Total Credits	18
AUTM2025 Brakes 3 AUTM2032 Manual Transaxle, Clutches, Transfer Case and Differentials AUTM2100 Basic Electricity 1	SPEE1020	Interpersonal Communication	3
AUTM2025 Brakes 3 AUTM2032 Manual Transaxle, Clutches, Transfer Case and Differentials	AUTM2205	Advanced Driveline and Chassis System	5
AUTM2025 Brakes 3 AUTM2032 Manual Transaxle, Clutches, Transfer Case 3	AUTM2100	Basic Electricity	1
AUTM2025 Brakes 3		and Differentials	
	AUTM2032	Manual Transaxle, Clutches, Transfer Case	3
AUTM2011 Suspension, Steering, & Alignment Systems 3	AUTM2025	Brakes	3
	AUTM2011	Suspension, Steering, & Alignment Systems	3

First Year - Second Semester

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

Second Year - First Semester

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

Second Year - Second Semester

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

TOTAL PROGRAM REQUIREMENTS

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

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

AUTOMOTIVE TECHNICIAN - DIPLOMA

First Year - First Semester

	Total Credits	18
SPEE10120	Interpersonal Communication	3
AUTM2205	Advanced Driveline and Chassis Systems	5
AUTM2100	Basic Electricity	1
	and Differentials	
AUTM2032	Manual Transaxle, Clutches, Transfer Cases	3
AUTM2025	Brakes	3
AUTM2011	Suspension, Steering and Alignment Systems	3

First Year - Second Semester

	Total Credits	17
ENGL1150	Composition I (or ENGL1000)	3
AUTM2315	Ignition System Operation, Diagnosis and Repair	3
AUTM2141	Advanced Automotive Electronic Systems	5
AUTM2136	Heating, Ventilation and Air Conditioning	3
AUTM2110	Automotive Engine Electrical Systems	3

Second Year - First Semester

	Total Credits	16
	General Education Elective**	2
AUTM2225	Advanced Engine and Transmission and Repair	6
AUTM2215	Automatic Transmission/Transaxle	4
AUTM2125	Engine Theory and Operation	4

Second Year - Second Semester

	Total Credits	14
AUTM2330	Advanced Driveability	5
AUTM2325	Computer Systems Operation Diagnosis and Repair	3
AUTM2315	Ignition System Operation, Diagnosis and Repair	3
AUTM2305	Fuel System Operation Diagnosis and Repair	3

TOTAL PROGRAM REQUIREMENTS 65

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

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

DRIVEABILITY - CERTIFICATE

Pending MnSCU Board Approval

First Year - First Semester

	Total Credits	18
	General Education**	3
AUTM2330	Advanced Driveability	5
AUTM2325	Computer Systems Operation Diagnosis and Repair	3
AUTM2315	Ignition System Operation, Diagnosis and Repair	3
AUTM2305	Fuel System Operation Diagnosis and Repair	3
AUTM2100	Basic Electricity	1

TOTAL PROGRAM REQUIREMENTS 18

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

ENGINES & TRANSMISSION - CERTIFICATE

Pending MnSCU Board Approval

First Year - First Semester

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

TOTAL PROGRAM REQUIREMENTS

18

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

^{**} General Education - Select from SPEE1020, COML1400 or ENGL1150.

^{**} General Education - Select from SPEE1020, COML1400 or ENGL1150.

ELECTRICAL, ELECTRONICS, & HVAC - CERTIFICATE

Pending MnSCU Board Approval

First Year - First Semester

	Total Credits	18
	General Education**	3
AUTM2315	Ignition System Operation, Diagnosis and Repair	3
AUTM2141	Advanced Automotive Electronic Systems	5
AUTM2136	Heating, Ventilation, and Air Conditioning	3
AUTM2110	Automotive Engine Electrical Systems	3
AUTM2100	Basic Electricity	1

TOTAL PROGRAM REQUIREMENTS 18

This is a sample course sequence resulting in a certificate.

Please consult your program advisor regarding your academic plans.

BRAKES, SUSPENSION AND DRIVELINE - CERTIFICATE

Pending MnSCU Board Approval

First Year - First Semester

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

TOTAL PROGRAM REQUIREMENTS 18

This is a sample course sequence resulting in a certificate.

Please consult your program advisor regarding your academic plans.

^{**} General Education - Select from SPEE1020, COML1400 or ENGL1150.

^{**} General Education - Select from SPEE1020, COML1400 or ENGL1150.

GM AUTOMOTIVE SERVICE EDUCATIONAL PROGRAM (ASEP)

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

Major Description

Through DCTC's unique cooperation with General Motors and ACDelco, ASEP trains highly specialized service technicians for GM dealers and ACDelco Total Service Support shops. ASEP labs are equipped with the latest GM technology, including vehicles, components, training aids and technical information. Trained to handle GM's computer-oriented product line, ASEP technicians are prepared to keep pace with future technology.

Work Environment

ASEP grads work as service technicians in General Motors dealerships, including Buick, Cadillac, Chevrolet, GMC or an ACDelco TSS Service Center.

Potential Job Titles

- Automobile Mechanic
- · Automobile Service Advisor
- · Automotive Repair Technician
- Automotive Technician
- Automotive Engineer
- · Automotive Service Manager

Salary Data

Average Wage: \$20.35/hourTop Earners: \$30.78/hour



AUTOMOTIVE SERVICE - A.A.S. DEGREE

	Total Credits	19
BIOL1110	Environmental Science	3
INTS1000	College Success Strategies	2
ASEP1201	Dealer Work Experience I	8
ASEP1102	Electrical and Fuel Systems	3
ASEP1101	Automotive Fundamentals	3
	- First Semester	

First Year - Second Semester

	Total Credits	20
SPEE1020	Interpersonal Communication	3
COML1400	Introduction to Computers	3
ASEP1202	Dealer Work Experience II	8
ASEP1105	Heating and Air Conditioning	3
ASEP1103	Driveability	3

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

	Total Credits	17
PHIL1200	Critical Thinking	3
ASEP1204	Dealer Work Experience IV	8
ASEP2209	Driveline and Four-Wheel Drive	3
ASEP2111	Engines	3

Second Year - Second Semester

ASEP1108	Brake Systems	3
ASEP1205	Dealer Work Experience V	8
ASEP1212	Advanced Diagnostics/New Model Update	1
ASEP2107	Steering and Suspension	2
SOCY1010	Marriage and Family	3
	Total Credits	17

TOTAL PROGRAM REQUIREMENTS 87

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

HEAVY CONSTRUCTION EQUIPMENT TECHNOLOGY

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

Heavy Construction Equip.	Technology A.A.S. Degree	72	Cr.
Heavy Construction Equip.	Technology Diploma	64	Cr.
Heavy Construction Equip.	Technology Certificate	28	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: \$25.37/hourTop earners: \$31.85/hour



HEAVY CONSTRUCTION EQUIPMENT TECHNOLOGY - A.A.S. DEGREE

Completion of this degree will also satisfy the requirements for the Advanced Caterpillar Technology A.A.S. degree, which prepares students for a challenging career with a focus on the Caterpillar product line.

First Year - First Semester

HCEMII10 Welding and Flame Cutting HCEMI132 Heavy Duty Electrical HCEMI140 Diesel Engine Overhaul I HCEMI160 Specialized Lab I SPEE1020 Interpersonal Communication	17
HCEM1110 Welding and Flame Cutting HCEM1132 Heavy Duty Electrical HCEM1140 Diesel Engine Overhaul I	3
HCEM1110 Welding and Flame Cutting HCEM1132 Heavy Duty Electrical	3
HCEM1110 Welding and Flame Cutting	4
	3
rice fillor deneral shop Mechanics - Introduction	2
HCEM1101 General Shop Mechanics - Introduction	2

First Year - Second Semester

	Total Credits	19
	General Education Elective**	3
ENGL1150	Composition I	3
HCEM1261	Specialized Lab II-A.A.S.	2
HCEM1256	Diesel Engine Tune-up	3
HCEM1250	Brakes	2
HCEM1246	Diesel Engine Overhaul II	3
HCEM1234	Heavy Duty Electronics	3

Second Year - First Semester

	Total Credits	18
	General Education Elective**	4
HCEM2176	Specialized Lab III-A.A.S.	2
HCEM2238	Hydraulics II	3
HCEM2135	Hydraulics I	3
HCEM2115	Transmissions	4
HCEM2265	Differentials	2

Second Year - Second Semester

HCEM2225	Track Drive Systems	3
HCEM2145	Hydrostatic Systems	3
HCEM2255	Steering Systems	3
HCEM2280	Climate Control	2
	General Education Elective (MnTC Goal 3 or 4)**	4
	General Education Elective**	3
	Total Credits	18

TOTAL PROGRAM REQUIREMENTS

72

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

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

HEAVY CONSTRUCTION EQUIPMENT TECHNOLOGY - DIPLOMA

First Year - First Semester

	Total Credits	17
SPEE1020	Interpersonal Communication	3
HCEM1160	Specialized Lab I	3
HCEM1140	Diesel Engine Overhaul I	4
HCEM1132	Heavy Duty Electrical	3
HCEM1110	Welding and Flame Cutting	2
HCEM1101	General Shop Mechanics - Introduction	2

First Year - Second Semester

	Total Credits	16
ENGL1150	Composition I (or ENGL1000)	3
HCEM1261	Specialized Lab II-A.A.S.	2
HCEM1256	Diesel Engine Tune-up	3
HCEM1250	Brakes	2
HCEM1246	Diesel Engine Overhaul II	3
HCEM1234	Heavy Duty Electronics	3

Second Year - First Semester

eneral Education Elective	
eneral Education Elective**	3
oifferentials	2
pecialized Lab III-A.A.S.	2
lydraulics II	3
lydraulics I	3
ransmissions	4
	lydraulics I

Second Year - Second Semester

	Total Credits	14
	Technical Elective*	3
HCEM2280	Climate Control	2
HCEM2255	Steering Systems	3
HCEM2225	Track Drive Systems	3
HCEM2145	Hydrostatic Systems	3

TOTAL PROGRAM REQUIREMENTS 64

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

* Technical Elective - Student must choose between HCEM2279 Specialized Lab IV 1-3 credits and/or HCEM2280 Climate Control 2 credits.

HEAVY CONSTRUCTION EQUIPMENT MAINTENANCE - CERTIFICATE

First Year - First Semester

	Total Credits	14
HCEM1160	Specialized Lab I	3
HCEM1140	Diesel Engine Overhaul I	4
HCEM1132	Heavy Duty Electrical	3
HCEM1110	Welding and Flame Cutting	2
HCEM1101	General Shop Mechanics - Introduction	2

First Year - Second Semester

· ···oc ··oci	occoma ocimentor	
HCEM1234	Heavy Duty Electronics	3
HCEM1246	Diesel Engine Overhaul II	3
HCEM1250	Brakes	2
HCEM1256	Diesel Engine Tune-up	3
HCEM1260	Specialized Lab II	3
	Total Credits	14
	TOTAL PROGRAM REQUIREMENTS	28

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

^{**} Select one of the following General Education electives: SPEE1020, COML1400 or ENGL1150.

HEAVY DUTY TRUCK TECHNOLOGY

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

Heavy Duty Truck Technology A.A.S. Degree	/2	Cr.
Heavy Duty Truck Technology Diploma 6	34	Cr.
Fruck Fleet Maintenance Certificate	31	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: \$22.51/hourTop earners: \$30.16/hour



HEAVY DUTY TRUCK TECHNOLOGY - A.A.S. DEGREE

First Year - First Semester

HDTT1100 Truck Technology Fundamentals HDTT1103 Air Brake Systems HDTT1106 Welding Procedures HDTT1109 Fluid Power Systems ENGL1150 Composition I	17
HDTT1103 Air Brake Systems HDTT1106 Welding Procedures	3
HDTT1103 Air Brake Systems	2
3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3	2
HUTTHOU Truck rechnology Fundamentals	6
LIDITATION To the selection of the selec	4

First Year - Second Semester

	Total Credits	20
	General Education Elective**	3
SPEE1020	Interpersonal Communication	3
HDTT1222	Truck A/C	2
HDTT1218	Electrical Systems	4
HDTT1215	Suspensions and Steering Systems	4
HDTT1212	Preventive Maintenance	4

Second Year - First Semester

	Total Credits	18
	General Education Elective (MnTC Goal 3 or 4)**	4
HDTT2110	Diesel Fuel Systems	1
HDTT2107	Diesel Fundamentals	3
HDTT2104	Drive Train II	4
HDTT2101	Drive Train I	6

Second Year - Second Semester

	TOTAL PROGRAM REQUIREMENTS	
	Total Credits	17
	General Education Elective**	7
HDTT2970	Internship (or HDTT2222 Diesel Engine Lab)	3
HDTT2216	Diesel Electronics	3
HDTT2213	Diesel Engine Fundamentals	4

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

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

HEAVY DUTY TRUCK TECHNOLOGY - DIPLOMA

First Year - First Semester

	Total Credits	17
COML1400	Introduction to Computers	3
HDTT1109	Fluid Power Systems	2
HDTT1106	Welding Procedures	2
HDTT1103	Air Brake Systems	6
HDTT1100	Truck Technology Fundamentals	4

First Year - Second Semester

	Total Credits	17
SPEE1020	Interpersonal Communication	3
HDTT1222	Truck A/C	2
HDTT1218	Electrical Systems	4
HDTT1215	Suspensions and Steering Systems	4
HDTT1212	Preventive Maintenance	4

Second Year - First Semester

HDTT2101 Drive Train I 6 HDTT2104 Drive Train II 4 HDTT2107 Diesel Fundamentals 3 HDTT2110 Diesel Fuel Systems 1 ENGL1150 Composition I (or ENGL1000) 3		Total Credits	17
HDTT2104 Drive Train II 4 HDTT2107 Diesel Fundamentals 3	ENGL1150	Composition I (or ENGL1000)	3
HDTT2104 Drive Train II 4	HDTT2110	Diesel Fuel Systems	1
	HDTT2107	Diesel Fundamentals	3
HDTT2101 Drive Train I 6	HDTT2104	Drive Train II	4
	HDTT2101	Drive Train I	6

Second Year - Second Semester

	Total Credits	13
HDTT2970	Internship (or HDTT2222 Diesel Engine Lab)	6
HDTT2216	Diesel Electronics	3
HDTT2213	Diesel Engine Fundamentals	4

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

TOTAL PROGRAM REQUIREMENTS

64

TRUCK FLEET MAINTENANCE - CERTIFICATE

First Year - First Semester

	Total Credits	17
COML1400	Introduction to Computers	3
HDTT1109	Fluid Power Systems	2
HDTT1106	Welding Procedures	2
HDTT1103	Air Brake Systems	6
HDTT1100	Truck Technology Fundamentals	4

First Year - Second Semester

	Total Credits	14
HDTT1222	Truck A/C	2
HDTT1218	Electrical Systems	4
HDTT1215	Suspensions and Steering Systems	4
HDTT1212	Preventive Maintenance	4

TOTAL PROGRAM REQUIREMENTS 31

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

RAILROAD CONDUCTOR TECHNOLOGY

Delivery: Daytime Classes Start: January, March, May or August (7 weeks), Full-Time Location: Rosemount Campus 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 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 industrya.

Work Environment

Railroad conductors oversee train routes, movements and car switching through a range of duties, including the relay of signals in emergency situations. Conductors work irregular hours, including holidays, weekends, days and nights for shifts up to 12 hours. Constantly alert to changing conditions, they are trained to act safely and responsibly.

Potential Job Titles

- Train Conductor
- · Locomotive Engineer
- · Train Dispatcher
- Trainmaster

Salary Data

Average Wage: \$25.88/hourTop Earners: \$31.07/hour

RAILROAD CONDUCTOR TECHNOLOGY - CERTIFICATE

15 Week Term

	Total Credits	16
RRCC2970	Railroad Conductor Internship	1
RRCC1160	Utilization of RR Equip. & Safety Standards	2
RRCC1150	Conductor Duties	2
RRCC1140	Mechanical Operations	2
RRCC1130	General Code of Operating Rules	4
RRCC1120	Introduction to Conductor Service	4
RRCC1110	Orientation	1

TOTAL PROGRAM REQUIREMENTS

Please consult your program advisor regarding your academic plans.

This is a sample course sequence resulting in a certificate.



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. This goal states: This education will empower individuals to obtain and retain employment, enhance their opportunities for career advancement, and furnish a supportive environment in which they can develop the knowledge, skills, and attitudes necessary to succeed in a global economy.

OUTCOME STATEMENT

General Education is a requirement of all programs of 45 or more semester credits in length and is an integral part of the formal technical or professional preparation of students. This "general" education provides the kind of intellectual concepts and common knowledge that is expected of an educated person.

DELIVERY OF COURSES

Traditional: DCTC offers a variety of day and evening transferable general education courses in the classroom.

Online: DCTC offers transferable general education courses online for those that need flexibility.

Flextime Lab: DCTC offers self-motivated students the opportunity to take COML 1400 Introduction to Computers through the Flextime Lab in the Instructional Technology Center.

Weekend Colleges: DCTC offers some weekend courses in a compressed format for three to eight weekends.

For a current schedule of course offering, visit, http://dctc.edu/go/courses.

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"The roots of education are bitter, but the fruit is sweet."

— Aristotle —

A.S. DEGREE REQUIREMENTS

An Associate in Science degree requires a minimum of 30 semester credits of general education as outlined below. See your advisor or program page in this catalog for program specific requirements.

REQUIRED COURSES

	Total Credits	12-14
PHYS	any Physics course	4
CHEM	any Chemistry course	4
BIOL	any Biology course	3-4
Science		
MATS	any Math course (except 1205)	3-4
	(choose one course numbered over 1000):	
SPEE1020	Interpersonal Communication	3
Human Dive	ersity	
ENGL1150	Composition I	3
Communica	ation	

ELECTIVE COURSES

Students must complete a minimum of 13-15 elective credits from at least two of the following Goal Areas listed on the following Minnesota Transfer Curriculum pages:

	Total Credits 16-1
(COML1400	may be used as an elective when all MnTC Goals are met)
Goal 10	People and the Environment
Goal 9	Ethical and Civic Responsibility
Goal 8	Global Perspective
Goal 6	Humanities and Fine Arts
Goal 5	History and the Social and Behavioral Sciences
Goal 2	Critical Thinking

TOTAL REQUIREMENTS 30

A.A.S. DEGREE REQUIREMENTS

An Associate in Applied Science degree typically requires 20 credits of general education as outlined below. See the program page in this catalog for program specific requirements.

REQUIRED COURSES

	Total Credits	9-10
MATS	any Math course (except 1205)	3-4
PHYS	any Physics course	4
CHEM	any Chemistry course	4
BIOL	any Biology course	3-4
Mathematic	s or Science (choose one course numbered	over 1000):
SPEE1020	Interpersonal Communication	3
Human Dive	ersity	
ENGL1150	Composition I	3
Communica	ation	

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:

Total Credits	10-11
Any Speech course	
Any Sociology course	
Any Psychology course	
Any Political Science course	
Any Philosophy course	
Any PHED course	
1000, 1010, or 1040	
Any Humanities course	
Any History course	
Any English course 1200 and above	
Any Economics course	
Any Communications course	
1400	
Any Biology course	
Any Arts course	
	Any Biology course 1400 Any Communications course Any Economics course Any English course 1200 and above Any History course Any Humanities course 1000, 1010, or 1040 Any PHED course Any Philosophy course Any Political Science course Any Psychology course Any Sociology course Any Speech course

* A maximum of 2 credits from these courses combined in any manner may count toward A.A.S. degrees requiring 20 or more general education credits.

TOTAL REQUIREMENTS

20

DIPLOMA REQUIREMENTS

For students enrolled in diploma programs over 45 credits in length, there are typically nine credits of required general education courses to complete as outlined below. See your advisor or program page in this catalog for program specific requirements.

REQUIRED COURSES

	Total Credits	9
General Ed	ucation Elective	3
Human Dive SPEE1020		3
Communica ENGL1150	ation Composition I	3

Please note:

Practical Nursing program requires 20 semester credits of general education courses. See page 81 for details.

The following diploma programs may substitute ENGL1000 for ENGL1150 (confirm with your advisor before taking):

Accounting

Applied Visual Arts

Auto Body Collision Technology

Automotive Technician

Electrical Construction

Electrical Lineworker

Electronic Publishing

Graphic Design Technology

Heavy Construction Equipment Mechanic

Heavy Duty Truck Technology

Landscape/Horticulture

Marketing Design Specialist

Property Management

MINNESOTA TRANSFER CURRICULUM

The Minnesota Transfer Curriculum (MnTC) is the format in which general education is accomplished within the public two- and four-year colleges and universities in Minnesota. The MnTC defines a common curriculum format for general education. Completion of a defined MnTC course(s) at one institution enables a student to receive credit for lower-division general education MnTC coursework upon admission to other MnSCU colleges and universities and the University of Minnesota.

DCTC provides general education in the MnTC format and accepts MnTC courses from other MnSCU colleges and universities and from the University of Minnesota campuses.

Students who complete the entire general education transfer curriculum have shown competency in 10 goal areas. DCTC offers courses that meet all of the 10 goal areas. Students transferring these courses to other colleges transfer on a course-by-course basis. Courses approved for the Minnesota Transfer Curriculum are identified in DCTC publications by the MnTC goal number(s).

Minnesota Transfer Curriculum Completion

Completion of the Minnesota Transfer Curriculum (MnTC) may require additional courses beyond those required for the A.S., A.A.S., or diploma. If the intent is to transfer to another college, it is advisable to contact the transfer college for course selection recommendations and transfer admission process information. If a transfer college has not yet been identified, then use the Minnesota Transfer Curriculum courses listed on the following pages as a guide for course selection.

Successful completion of at least 40 credits within the accepted 10 goal areas, as outlined below, constitutes completion of the Minnesota Transfer Curriculum at DCTC. The goal area completion requirement is listed in italic text after the goal area descriptive paragraph.

COMMUNICATIONS (GOAL 1)

To develop writers and speakers who use the English language effectively and who read, write, speak and listen critically. As a base, all students should complete introductory communication requirements early in their collegiate studies. MnTC completion requires three courses, one must be ENGL1100, and one SPEE.

ENGL1150	Composition I	3 cr.
ENGL1200	Technical Writing	3 cr.
ENGL2000	English Composition II	3 cr.
SPEE1015	Fundamentals of Public Speaking	3 cr.
SPEE1042	Small Group Communication	3 cr.
SPEE1050	Nonverbal Communication	2 cr.

CRITICAL THINKING (GOAL 2)

Students will be able to gather and use factual information to make logical assumptions, interpretations or connections. Critical thinking will be taught and used throughout the general education and technical curriculum to develop students' awareness of their own thinking and problem-solving procedures. This goal can be met by completing Goal 1 and completing the technical program.

PHIL1200 Critical Thinking 3 cr.

NATURAL SCIENCES (GOAL 3)

To improve students' understanding of natural science principles and of the methods of scientific inquiry, i.e., the ways in which scientists investigate natural science phenomena. By studying the problems that engage today's scientists, students learn to appreciate the importance of science in their lives and to understand the value of a scientific perspective. MnTC Completion requires two courses of two different disciplines; at least one must be a lab course.

LAB SCIENCES:

BIOL1310	Intro to Anatomy & Physiology	4 cr.
BIOL1400	Ecology Field Studies	4 cr.
BIOL1500	General Biology	4 cr.
BIOL1600	Microbiology	4 cr.
BIOL2000	Anatomy & Physiology I	4 cr.
BIOL2010	Anatomy & Physiology II	4 cr.
CHEM1500	Introduction to Chemistry	4 cr.
PHYS1100	College Physics I	4 cr.
PHYS1200	College Physics II	4 cr.

NON-LAB SCIENCES:

BIOL1110	Environmental Science	3 cr.
BIOL1120	Minnesota Nature Study	3 cr.
BIOL1200	Biology and Society	3 cr.

MATHEMATICAL/LOGICAL REASONING (GOAL 4)

To increase students' knowledge about mathematical and logical modes of thinking. This will enable students to appreciate the breadth of applications of mathematics, evaluate arguments, and detect fallacious reasoning. MnTC completion requires one course that is at least three credits.

MATS1200	Concepts of Mathematics	3 cr.
MATS1251	Statistics	4 cr.
MATS1300	College Algebra	4 cr.
MATS1350	Math for Liberal Arts	4 cr.

HISTORY AND THE SOCIAL AND BEHAVIORAL SCIENCES (GOAL 5)

To increase students' knowledge of how historians and social and behavioral scientists discover, describe, and explain the behaviors and interactions among individuals, groups, institutions, events, and ideas. Such knowledge will better equip students to understand themselves and the roles they play in addressing the issues facing humanity. MnTC completion requires three courses from at least two disciplines.

ECON1100	Principles of Microeconomics	3 cr.
ECON1200	Principles of Macroeconomics	3 cr.
HIST1100	History of United States to 1877	4 cr.
HIST1200	History of US from 1877 to Present	4 cr.
HIST1300	World History	4 cr.
HIST1400	American Environmental History	3 cr.
HIST1450	The History of Minnesota	3 cr.
HIST1500	History of Western Civilization	3 cr.
POLS1000	Introduction to Political Science	3 cr.
PSYC1100	General Psychology	3 cr.
PSYC1200	Abnormal Psychology	3 cr.
PSYC1300	Child/Adolescent Psychology	3 cr.
PSYC1350	Lifespan Development	4 cr.
PSYC1400	Adult/Geriatric Psychology	2 cr.
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.

HUMANITIES AND FINE ARTS (GOAL 6)

To expand students' knowledge of the human condition and human cultures, especially in relation to behavior, ideas and values expressed in works of human imagination and thought. Students will engage in critical analysis, form aesthetic judgments, and develop an appreciation of the arts and humanities. MnTC completion requires two courses from two different disciplines.

ARTS1300	History of Architecture	4 cr.
ENGL1300	Intro to Creative Writing	3 cr.
ENGL1400	American Short Story	3 cr.
ENGL1550	Intro to Literature	3 cr.
ENGL1600	Film Studies	3 cr.
ENGL1650	Greek Mythology	4 cr.
ENGL1700	Selected Works in Literature	3 cr.
ENGL1750	Fantasy/Science Fiction Literature	3 cr.
ENGL1800	Mystery & Detective Literature	3 cr.
ENGL1900	Creative Writing Workshop	3 cr.
ENGL2000	English Composition II	3 cr.
HUMA1100	Introduction to the Humanities	4 cr.
PHIL1300	Introduction to Philosophy	3 cr.
PHIL1350	Medical Ethics	3 cr.
PHIL1400	World Religions	3 cr.

HUMAN DIVERSITY (GOAL 7)

To increase students' understanding of individual and group differences (e.g., race, gender, class) and their knowledge of the traditions and values of various groups in the United States. Students should be able to evaluate the United States' historical and contemporary responses to group differences. MnTC completion requires one course.

SOCY1150	Race and Gender	2 cr.
SPEE1020	Interpersonal Communication	3 cr.
SPEE1030	Intercultural Communication	3 cr.

GLOBAL PERSPECTIVE (GOAL 8)

To increase students' understanding of the growing interdependence of nations and peoples and develop their ability to apply a comparative perspective to cross-cultural social, economic and political experiences. MnTC completion requires one course.

American Sign Language-Level I	3 cr.
World History	4 cr.
World Religions	3 cr.
Social Issues in a Changing World	3 cr.
Beginning Spanish I	4 cr.
Beginning Spanish II	4 cr.
Intercultural Communication	3 cr.
	World History World Religions Social Issues in a Changing World Beginning Spanish I Beginning Spanish II

ETHICAL AND CIVIC RESPONSIBILITY (GOAL 9)

To develop students' capacity to identify, discuss, and reflect upon the ethical dimensions of political, social, and personal life and to understand the ways in which they can exercise responsible and productive citizenship. MnTC completion requires one course.

PHIL1100	Ethics	3 cr.
PHIL1300	Introduction to Philosophy	3 cr.
Phil1350	Medical Ethics	3 cr.

PEOPLE AND THE ENVIRONMENT (GOAL 10)

To improve students' understanding of today's complex environmental challenges. Students will examine the inter-relatedness of human society and the natural environment. Knowledge of both bio-physical principles and socio-cultural systems is the foundation for integrative and critical thinking about environmental issues. MnTC completion requires one course.

BIOL1110	Environmental Science	3 cr.
BIOL1200	Biology and Society	3 cr.
HIST1400	American Environmental History	3 cr.
SOCY1300	Introduction to Anthropology	3 cr.

COMPUTER LITERACY/COMPUTERS & SOCIETY

Students will be able to explain the underlying concepts of computer technology and use software applications as productivity tools. This emphasis area is not part of the Minnesota Transfer Curriculum. COML1400 may be used as an elective when MnTC Goals are met.

COML1400	Introduction to Computers	3 cr.
COSO1000	Computer and Society Basics	1 cr.
COSO1050	Computers and Society Essentials	2 cr.

DEVELOPMENTAL EDUCATION

- General Education at the developmental level is designed to prepare students for transfer-level coursework and to enhance success within technical training programs.
- Developmental courses often help students improve test scores in order to qualify for entry into general education or technical coursework.
- Developmental course numbers begin with a zero. They cannot be used to satisfy graduation requirements.

Communications

ENGL0118	Basic English and Writing Review	3 cr.
ENGL0130	English Essentials	3 cr.
ENGL0114	College Reading I	3 cr.
ENGL0215	College Reading II	3 cr.
ENGL0123	Medical Reading and Study Skills	4 cr.

English for Speakers of Other Languages

ESOL0030	ESOL Listening and Speaking I	4 cr.
ESOL0032	ESOL Reading I	4 cr.
ESOL0035	ESOL Writing and Grammar I	4 cr.
ESOL0040	ESOL Listening and Speaking II	4 cr.
ESOL0042	ESOL Reading II	4 cr.
ESOL 0045	ESOL Writing and Grammar I	4 cr

Mathematical/Logic Reasoning

MATS0200	Basic Mathematics	3 cr.
MATS0305	Introduction to Algebra	4 cr.
MATS0400	Introduction to Geometry	1 cr.
MATS0500	Introduction to Trigonometry	1 cr.
MATS0600	Intermediate Algebra	4 cr.

ACCOUNTING

ACCT1000 Principles of Accounting I

This course covers the fundamental accounting concepts and principles that are used in a business environment. It serves as the introductory course to financial accounting as it relates to accrual accounting. **Articulated**

ACCT1003 Principles of Accounting II 4 cr.

This course provides instruction for the analysis and recording of transactions relating to partnerships and corporations in both merchandising and manufacturing environments. Prerequisites: ACCT1000.

ACCT1005 Principles of Bookkeeping 2 cr.

This course is an introduction to basic accounting procedures, including analyzing business transactions, recording transactions in the general journal, preparing financial statements, handling cash and completing the accounting cycle for non-accounting majors.

ACCT1100 Business Law and Ethics 3 cr

This course is an introductory course in the principles of law as they apply to citizens and business. **Articulated**

ACCT1106 Accounting Mathematics 3 cr.

This course includes a review of the basics of arithmetic and algebra. The focus is on business and financial operations concepts with a strong emphasis on problem solving.

ACCT1226 Payroll Accounting 3 cr.

This course covers the various state and federal laws pertaining to the computation and payment of salaries and wages. Topics include preparation of employment records, payroll registers, employee earnings records, and state and federal reports. Prerequisites: ACCT1000.

ACCT1236 Business Payroll 2 cr.

This course covers the various state and federal laws pertaining to the computation and payment of salaries and wages. Topics include preparation of employment records, payroll registers, employee earnings records, and state and federal reports. Prerequisites: ACCT1000.

ACCT1306 Spreadsheets 3 cr.

This course covers the use of a computer spreadsheet program for accounting applications. Topics include managing multiple-sheet spreadsheets, creating and using charts and graphs, creating complex formulas and creating and printing reports. Prerequisites: COML1400.

ACCT1406 Income Tax 4 cr.

This course provides a practical explanation of the Internal Revenue Code as it applies to individuals and businesses. Tax forms are an integral part of this course.

ACCT2000 Intermediate Accounting I 4 cr.

This course is part one of a two-part course of study of accounting theory and concepts with an analysis of the influence on financial accounting by various boards, associations, and governmental agencies. Topics include the income statement, balance sheet, statement of cash flows, and the study of cash, marketable securities, notes and accounts receivable and plant and intangible assets. Prerequisites: ACCT1003.

ACCT2003 Intermediate Accounting II 4 cr.

This course is part two of a two-part course of study of accounting theory and concepts. Topics include long-term investments, current and contingent liabilities, bonds payable, leases, pension plans, owner's equity, and accounting for income taxes and earnings per share. Prerequisites: ACCT2000.

ACCT2100 Cost Accounting I

4 cr.

This course covers accounting for materials, labor and factory overhead in a manufacturing entity. Other topics include the job order cost system, the process cost system and accounting for scrap, spoiled goods, by-products and joint products. Prerequisites: ACCT1000.

ACCT2103 Cost Accounting II

4 cr.

Topics include cost-volume-profit relationships, differential costs and revenues, budgeting, standard costing, and cost analysis. Also included are quantitative techniques used for inventory control. Prerequisites: ACCT2100.

ACCT2200 Accounting Computer Applications I

3 cr.

This course is an introduction to computerized accounting applications. Topics include general ledger, payroll, accounts receivable, accounts payable and inventory. Prerequisites: ACCT1000 and COML1400.

ACCT2203 Accounting Computer Applications II 3 cr.

This course involves the use of a commercial accounting software package to complete an accounting simulation. Topics include depreciation and fixed assets. Prerequisites: ACCT2200.

ACCT2306 Auditing

3 cr.

This course is the fundamental course in external auditing. The course will be a practical application of external auditing as it applies to public accounting. Prerequisites: ACCT1000.

ACCT2400 Personal Financial Management

2 cr.

This course covers the major aspects of personal finance including budgeting, credit, insurance, tax planning, investing and retirement and estate planning.

ARCHITECTURAL TECHNOLOGY

ARCT1100 Architectural Studio I

8 cr

This course will introduce the beginning architectural student to wood-framed and masonry structures, including basic manual drafting techniques, zoning and building code sources, fundamental building design concepts and current building technology principles. Students will prepare architectural drawings of residential and light commercial projects in a simulated professional design office setting.

ARCT1103 Building Technology I

3 cr.

This course will introduce the beginning architectural technology student to the characteristics and properties of common building materials: wood, masonry, concrete and metals. Fundamentals of current building technology principles will be learned in association with studio projects. Students will research building technology principles from library resources, manufacturer's catalogs and professionally prepared construction documents. Prerequisites: Concurrent enrollment in ARCT1100.

ARCT1107 CAD I

3 cr.

This course will introduce the beginning architectural technology student to computer-aided design programs currently being used in professional design offices. Fundamental concepts, commands, and tools of a CAD environment will be taught with a hands-on approach to learning. Students will complete self-paced drafting exercises. Prerequisites: A working knowledge of Windows Operating System or instructor approval. **Articulated**

ARCT1200 Architectural Studio II

8 cr.

Students prepare design construction documents for a small-scale commercial building in a simulated professional design office. Students learn to integrate building codes, ADA, and structural systems into their designs. Prerequisites: ARCT1100, and concurrent enrollment in ARCT1203.

ARCT1203 Building Technology II

3 cr.

Various commercial building codes will be presented and analyzed. The student will do a building codes research project. The completed research will be documented and integrated into design projects. Prerequisites: ARCT1100 and ARCT1103, and concurrent enrollment in ARCT1200.

ARCT1207 CAD II

3 cı

This course builds on the student's knowledge of AutoCAD. The student will use intermediate AutoCAD techniques to develop construction drawings to supplement the work in ARCT 1200. Prerequisites: ARCT1107.

ARCT1300 Introduction to SketchUp Modeling Software 3 cr.

This course will introduce the motivated student to 3 dimensional modeling software currently being used in professional design offices. Fundamental concepts, commands, and tools of the SketchUp will be taught in an enhanced on-line learning environment. There will be two on site formal lectures introducing basic concepts and ten on-line sessions. Students will submit required projects, questions and comments, to D2L server. Students will complete self-paced tutorials available at the following web address: http://www.sketchup.com Prerequisites: The student will have a working knowledge of Mac OS and/or Windows XP. It is recommended the student have a background in either drafting, art or computer graphics.

ARCT1400 Residential Planning and Design

This course will introduce the interested student to the fundamentals of residential design. The course curriculum is intended to guide the learner toward a basic understanding of Plot Plan layout, Floor Plan development and current Architectural styles.

ARCT1425 Architectural Drawings and Methods

This course will introduce the interested student to the fundamentals of Architectural drawings. the course curriculum is intended to guide the learner toward a basic understanding of Sketching to Scale, Orthographic Images and required project Drawings for the purposes of design and construction.

ARCT1450 Wood Frame Building Technologies 4 cr.

This course will introduce the interested student to the fundamentals of Wood Frame construction. The course curriculum is intended to guide the learner toward a basic understanding of Foundation Construction, Wood Frame assemblies and conventional building systems.

ARCT1475 Residential Construction and Costs 4 cr.

This course will introduce the interested students to the construction process for residential structures. The course curriculum is intended to guide the learner toward a basic understanding of contracting, cost estimating and building official inspections.

ARCT2100 Architectural Studio III 8 cr

Students prepare architectural drawings for a small-scale commercial building. This course builds on the students' architectural technology skills as they prepare projects for their portfolios. Prerequisites: ARCT1200, and concurrent enrollment in ARCT2103.

RCT2103 Building Technology III 3

This course will introduce the student to acoustics, electrical/lighting, plumbing, HVAC, insulation and vapor barriers, and fire protection. The student will integrate research on various building systems into design projects. Prerequisites: ARCT1203, and concurrent enrollment in ARCT2100.

ARCT2107 CAD III

This course builds on the student's knowledge of AutoCAD. The student will use advanced AutoCAD techniques to develop construction drawings to supplement the work in ARCT 2100. Prerequisites: ARCT1207 or equivalent.

ARCT2200 Architectural Studio IV

5 cr.

This course provides an opportunity for the student to demonstrate previously learned architectural technology skills by independently preparing computer-aided design working drawings of a commercial project elevation detail sheet. Students will incorporate the completed drawings into their portfolios for internship interviews with future employers. Prerequisites: ARCT2100.

ARCT2210 Architectural Technology Portfolio

This class hands-on course will concentrate on preparing the student to enter a career in architectural technology. Students will use software skills to refine and enhance completed projects for use in their portfolios. Students will receive guidance in various display options and presentation methods. Projects for inclusion in the portfolio will include sketches, renderings, and technical CAD drawings. Upon completion the student will have an industry-ready portfolio in preparation for entering the job market. As a part of this course, students are required to participate in a formal portfolio showing near the end of their final semester of school. Prerequisites: Students must be in their final semester of the Architectural Technology program.

ARTS

ARTS1000 Visual Communications

3 cr.

We live in a world that often places us in a position of visual overload. The ease with which materials can be produced and shared with global audiences means that in our daily lives we are often overwhelmed by visual information. It is important that we learn to read, interpret and use images for communication purposes. It is also imperative that we explore how to place visual work in a context that allows us to understand the social, political and cultural implications of various visual productions. This course is an introduction about the theories and hands-on aspects of visual communications. We will explore both the production and consumption of visual images.

ARTS1100 History of Photography

3 cr.

This course will allow students to explore photography and its affects on culture by examining the origins of the medium. While it may seem that photography belongs only to the twentieth century, students will learn that the origins of the first camera date back hundreds of years. Early photographers were often "frustrated painters," and affected strongly by art and art history movements. This class then will begin with a review of the camera's beginnings and of the artistic cultural milieu that helped to bring the medium into adulthood in the twentieth century.

ARTS1200 The Creative Process

3 cr.

Much of the thinking learned in school and in the work environment place an emphasis on learning how to understand claims, follow or create a logical argument, figure out the answer, eliminate the incorrect paths and focus on the correct one. There is, however, another kind of thinking, centered on exploring ideas, generating possibilities, looking for many right answers rather than just the "correct" one. Both of these kinds of thinking are vital to success in the work place, yet the creative approach tends to be ignored until after the formal education is complete. In this course we will explore the creative thought process and develop systems to encourage and develop new idea generation.

ARTS1300 History of Architecture

4 cr.

This course will cover architecture from prehistory up to today, looking at examples throughout history and examining the issues that help shape them. The course will not only look at who designed the buildings, but who built them, who used them, and why. Beginning with the earliest manmade shelters and ending with issues influencing architecture today, the course will introduce students to different ways of seeing buildings and architecture as cultural artifacts emblematic of culture. Meets MnTC Goal 6.

AUTO BODY COLLISION TECHNOLOGY

ABCT1111 Collision Repair Welding I 2

This course covers welding safety, familiarization with oxyacety-lene equipment and MIG welder operations.

ABCT1120 Sheet Metal Repair 5 ci

This course covers the tools and processes used for repairing minor damage on sheet metal panels. Safe and proper use of body fillers are included in this course. Prerequisites: ABCT1111. **Articulated**

ABCT1130 Refinishing Preparation I 2 cr.

This course covers refinishing safety, refinishing equipment, masking and surface preparation procedures. Prerequisites: ABCT1120 and ABCT1142. **Articulated**

ABCT1142 Glass, Trim, and Hardware 4 cr.

This course covers the procedures for the removal and replacement of stationary glass, moveable glass and most component of a vehicle.

ABCT1150 Reconditioning and Detailing

This course covers various methods of vehicle cleanup and reconditioning. **Articulated**

ABCT1212 Collision Repair Welding II 2 cr.

This course covers aluminum welding, resistance type spot welding, weld bonding and the I-CAR welding qualification test. Pre-requisites: ABCT1111. **Articulated**

ABCT1214 Refinishing Preparation II 3 cm

This course covers procedures for preparation and application of undercoat systems. Panel preparation techniques are also covered. Prerequisites: ABCT1120, ABCT1130, ABCT1142.

ABCT1216 Refinishing Application 5 cr.

This course covers the application of undercoats and topcoats in refinishing. Color theory, adjustment, and blending will be covered. Prerequisites: ABCT1142, ABCT1150, ABCT1130, ABCT1214

ABCT1230 Auto Body Plastic Repair 2 cr

This course covers the different methods of repairing automotive plastics. Prerequisites: ABCT1130, ABCT1142, ABCT1214, ABCT1216.

ABCT2100 Body Electrical 2 cr.

This course will focus on electrical troubleshooting and repair problems and procedures relating to collision electrical damage problems. It covers operation, servicing of chassis wiring, instruments, and accessories.

ABCT2102 Shop Management and Estimating 2 cr

This course will focus on management duties related to personnel, shop flow and monetary tasks. This course will contain and require handwritten and computer driven estimation procedures and understanding of estimating terminology.

ABCT2106 Collision Damage Repair/Replacement 6 cr.

This course will focus on sheetmetal, unitized body and full frame sectioning and replacement of parts and components. Content will be based on proper methods that are approved and tested to meet O.E.M. and I-Car standards for proper structural integrity of the repair and the vehicle. Prerequisites: ABCT1111, ABCT1212, and ABCT1120.

ABCT2108 Unibody/Frame/Wheel Alignment I 4 ci

This course will focus on unibody, full frame repair and alignment using various alignment, measuring and pulling equipment. This course will also contain wheel alignment procedures and terminology relating to collision damaged vehicles. Prerequisites: ABCT1111, ABCT1212, ABCT1120.

ABCT2212 Unibody/Frame/Wheel Alignment II 6

This course is a continuation of ABCT2108 with additional technical information and procedures. Students will be using frame repair equipment, various measuring equipment to include universal measuring, centerline gauges, and laser measuring and applying all previous training on damaged vehicle repairs. Prerequisites: ABCT1111, ABCT1212, ABCT1120, ABCT2108, ABCT2106.

ABCT2230 Body Mechanical and Air Conditioning 3 cr.

This course will focus on auto collision related minor mechanical failures. The course will also focus on typical air conditioning procedures related to auto collision such as reclaim, recharge and replace parts as result of a collision contains subject matter related to mechanical repairs as a result of a collision.

ABCT2970 Autobody 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: ABCT1100, ABCT1111, ABCT1120, ABCT1130, ABCT1142, ABCT1150, ABCT1212, ABCT1216, ABCT1230, ABCT2102, ABCT2230, ABCT2106, ABCT2108. **Articulated**

AUTOMOTIVE RESTORATION

2 cr.

ARES1000 Intro to Auto Restoration Welding/Sheet Metal

6 cr.

This course covers basic tools and techniques for the restoration of older vehicles. Topics will include: welding, rust repair, metal straightening, plastic filler application and corrosion protection.

AUTOMOTIVE TECHNICIAN

AUTM2001 Know Your Car

1 cr.

This course covers correct procedures for servicing vehicles, safety procedures and use of service manuals and bulletins. The course is designed for those who want to know more about their vehicles and be able to perform minor service.

AUTM2011 Suspension, Steering & Alignment 3 cr.

This course teaches suspension systems using leaf springs, coil springs, McPherson struts, and torsion bars. Steering systems using manual and power rack and pinion, recirculating ball steering gears. Alignments angles and their relationship to vehicle handling. Prerequisites: AUTM2100.

AUTM2025 Brakes 3 cr.

This course includes basic principles of brakes, hydraulic system basics, disc and drum brakes, parking brakes, anti-lock brakes and power assist units. Emphasis will be placed on operation, diagnosis and repair of various types of braking systems. Prerequisites: AUTM2100.

AUTM2031 Differential and Four Wheel Drive 3 cr.

This course will cover the operation and proper repair procedures for current differentials used on late-model vehicles. It also covers the operation and proper repair procedures for current transfer cases and hubs in four-wheel-drive vehicles.

AUTM2032 Manual Transaxle, Clutches, 3 cl Transfer Cases and Differential

This course will cover the operation and proper repair procedures of current differentials, manual transmissions, transaxles, and transfer cases used on late model vehicles. It also covers the operation and proper repair procedures for locking hubs in four-wheel drive vehicles.

AUTM2100 Basic Automotive Electricity

1 cr.

This course covers basic automotive electrical theories, diagnosis, and repair procedures using various types of tools and test equipment and reference materials available in Alldata, Mitchell and your text book.

AUTM2110 Automotive Engine Electrical Systems

This course covers automotive batteries, starting and charging system theories, diagnosis, and repair procedures using various types of tools and test equipment and reference materials available in Alldata, Mitchell and your textbook. Prerequisites: AUTM2100.

AUTM2115 Automotive Body Electrical Systems

3 cr.

This course covers automotive batteries, starting, and charging system theories, diagnosis, and repair procedures using various types of tools and test equipment and reference materials available in Alldata, Mitchell and your textbook. Prerequisites: AUTM2100.

AUTM2125 Engine Theory and Operation

This course includes general engine diagnoses, cylinder head diagnoses and repair, valve train diagnoses and repair, engine block diagnoses and repair. The class stresses how engines work and how to repair them. Prerequisites: AUTM2100.

AUTM2136 Heating, Ventilation and Air Conditioning 3 cr. This course covers the theory, operation, and repair of modern automtive air conditioning systems. The course includes practical work on air conditioning systems such as recovering refrigerant, evacuating, component service, charging, and performance testing. Prerequisites: AUTM2100.

AUTM2141 Advanced Automotive Electronic Systems 5 cr. This course covers advanced automotive electrical, electronic, and HVAC system diagnostic and repair procedures using

and HVAC system diagnostic and repair procedures using various types of tools and test equipment and reference materials available in Alldata, Mitchell and your textbook. Prerequisites: AUTM2100.2110.2115.2136.

AUTM2205 Advanced Driveline and Chassis Systems 5 cr.

This course includes the advanced diagnosis and electrical repairs of the driveline components. Emphasis will be placed on anti-lock brakes and traction control.

AUTM2215 Automatic Transmission/Transaxle 4 cr. Theory and Operation

This course includes basic theory of torque converters, planetary gears, clutches, bands, and hydraulics. The class stresses how automatic transmissions and transaxles work and how to repair them. Prerequisites: AUTM2100.

AUTM2225 Advanced Engine and Transmission Repair 6 c

This course includes: advanced automatic transmission and engine diagnostic procedures. Advanced repair of automatic transmissions and engines. Prerequisites: AUTM2100, AUTM2125, AUTM2215.

AUTM2305 Fuel System Operation Diagnosis and Repair 3 cr.

This course covers the operation and servicing techniques required to diagnose and repair ignition system related concerns encountered on modern automobiles. Prerequisites: AUTM2100.

AUTM2315 Ignition System Operation, Diagnosis & Repair 3 c

This course covers the operation and servicing techniques required to diagnose and repair ignition system related concerns encountered on modern automobiles. Prerequisites: AUTM2100.

AUTM2321 Automotive Computers and Fuel Injection

This course will cover the theory and operating principles of automotive computers and throttle body and multi-port injection systems.

AUTM2325 Computer Systems Operation Diagnosis and Repair

3 cr.

This course covers the operation and servicing techniques required to diagnose and repair ignition system related concerns encountered on modern automobiles. Prerequisites: AUTM2100.

AUTM2330 Advanced Driveability

5 cr

This course covers the operation and servicing techniques required to diagnose and repair driveability concerns encountered on modern automobiles. Live work will be stressed in this course. Prerequisites: AUTM2100, AUTM2315, AUTM2325.

BIOLOGY

BIOL1110 Environmental Science

3 cr.

This course emphasizes the fundamental concepts in ecology as they pertain to the impact of humans on the environment. It addresses such issues as the stresses placed on the biosphere by the exploitation of natural resources and energy, the creation of pollution and the disposal of waste. Meets MnTC Goals 3 & 10.

BIOL1120 Minnesota Nature Study

3 cr.

This course covers the natural habitats of Minnesota and the plants and animals that live in them. It includes such topics as our physical environment, ecology, and animal traits and behaviors such as mimicry or migration. Human interactions with these habitats and interdependence between states and countries with regard to wildlife are covered. Meets MnTC Goal 3.

BIOL1200 Biology and Society

5 Cr

This is an interdisciplinary course that explores the interaction between biology and related complex human issues. Along with gaining an understand of biology's more technical aspects, students in this course will also explore the historical, political, and environmental perspectives needed to understand the impacts that important biology issues have on society. Breakthroughs in genetics, stemcell propagation, cloning, and human genome project give rise to numerous ethical questions. The emergence of viral pathogens such as HIV and Ebola, the increasing prevalence of drug resistant bacteria, and the specter of anthrax and smallpox being utilized as agents of terrorism, raise daunting social and scientific questions. Addressing such issues requires both an understanding of biology and its context within our society. Meets MnTC Goals 3 & 10.

BIOL1310 Introduction to Anatomy and Physiology 4 c

This lecture and laboratory based course is designed for introductory study of human anatomy and physiology. It emphasizes the structure and function of the systems of the body including the skeletal, muscular, cardiovascular, respiratory, nervous, endocrine, renal, digestive, urinary, and reproductive systems. Carefully check your program requirements for acceptability of this course. It does not replace the two course sequence of anatomy and physiology required for many advanced health programs. Prerequisites: Recommend college level reading and math placement on Accuplacer. Meets MnTC Goal 3.

BIOL1400 Ecology Field Studies

4 cr.

An inquiry-based course that covers the fundamental principles of ecology, conservation, and sustainability. Students will have the opportunity to learn through laboratory, field work, and lecture activities. Topics include biodiversity, a survey of biomes, populations, interrelationships in biological communities, ecological succession, energy flow, nutrient cycling, physiological ecology, and human impacts on ecosystems. Meets MnTC Goal 3.

BIOL1500 General Biology

4 cr.

The course surveys the basic principles of biology. Units included are in cell biology, the life and diversity of plant and animals, genetics, evolution and ecology. Dissection of frog required. Prerequisites: Recommended CPT reading score over 50%. Meets MnTC Goal 3.

BIOL2000 Anatomy & Physiology I

4 0

This two-semester sequence provides the student with the basic knowledge in anatomy and physiology of the human body. The emphasis will be on the relationship between body structure and function. Each functional system is considered in terms of its cell, tissue and organ types. Fundamental information in the areas of chemistry and physics as related to the structure and function of the body is also included. Structural systems covered, including the integumentey skeletal, muscular and nervous. Dissection of muscle, brain, and bone specimen is required. Prerequisites: A "C" or better in BIOL1500 or equivalent or instructor permission. Meets MnTC Goal 3.

BIOL2010 Anatomy and Physiology II

4 0

This two-semester sequence provides the student with the basic knowledge in anatomy and physiology of the human body. The emphasis will be on the relationship between body structure and function. Each functional system is considered in terms of its cell, tissue and organ types. Fundamental information in the areas of chemistry and physics as related to the structure and function of the body is also included. Systems covered include digestive, urinary, reproductive, lymphatic and cardiovascular. Dissection of a fetal pig is required. Prerequisites: BIOL2000 or equivalent. Meets MnTC Goal 3.

BIOL2020 Microbiology

4 cr.

An introduction to Microbiology with a focus on microbe classification and biology, disease transmission, and pathogenesis, the immune response, and isolation and identification laboratory practices. Emphasis will be on microorganisms that cause local and systemic disease in humans with consideration of treatment options as well as infection control and prevention strategies. This course is intended for nursing students and other students pursuing careers in allied health fields. Prerequisites: BIOL1500. Meets MnTC Goal 3.

BIOMEDICAL EQUIPMENT TECHNOLOGY

BMET1110 Introduction to Biomedical Technology

This course provides students with an industry overview/perspective in the biomedical technology field. In this course students will learn the relationships between equipment and patient care.

BMET1112 DC Electricity

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 c

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.

BMET1116 Solid State Electronics 5 cr

This course will introduce students to a wide range of active solid state devices such as transistors, unijunction transistors, and silicon-controlled rectifiers. It also teaches how these devices are used in practical circuits such as amplifiers, speed controls, switching circuits, and timing circuits. The student will compute component and circuit parameters. These will then be compared with measured data. Circuits will be designed and evaluated by breadboarding and/or computer simulation software.

BMET1121 Administrative Functions

Cr.

This course introduces students to the basic operation of hospitals; the requirements of regulatory agencies; biomedical department policies and procedures and the managing of information, work orders and vendors.

BMET1123 A. C. Electricity

3 cr.

This course introduces the principles of alternating current. Circuits will consist of resistive, capacitive and inductive devices. Ohm's and Watt's laws, along with Norton's and Thevenin's theorems will be used to simplify complex combinations of RCL circuits. Test equipment introduced includes the VOM (volt-ohm-meter), DMM (digital-multimeter), signal generator and oscilloscope. The course concludes with resonating circuits. Prerequisites: BMET1112 or equivalent.

BMET1136 Managing Customer Satisfaction 1 cr in the Health Care

This course will consist of class lecture and practical exercises. The student will learn to differentiate between internal and external customers in the Health Care Environment. They will be able to identify good customer service when they see it. They will understand the three areas of focus for customer service improvement. Customer service issues specific to the Health Care field and technical service will be covered.

BMET1225 Biomedical Instrumentation I 4

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.

BMET1231 Biomedical Instrumentation II

4 cr.

This course provides a foundation in the theory and operation of medical laboratory equipment, fiber optics, computers, radiology, nuclear medicine and ultrasound. Prerequisites: BMET1225.

BMET1241 Mechanical Systems

3 cr.

This course is designed to teach the fundamentals of hydraulics and pneumatics and basic mechanical applications. The curriculum incorporated in the system includes instruction in the mathematics component of hydraulics and pneumatics, and provides experiences in problem solving, data management, and self-directed learning.

BMET1530 Digital and Micro Processor 3

This course covers the basic and advanced digital logic used in integrated circuits and their application. Logic diagrams and analysis will be covered. Microprocessor control and feedback systems using sensor feedback will be studied. Training will be accomplished using the LabVolt system and handouts selected by the instructor. Prerequisites: BMET1112, BMET1123, BMET1116 or equivalent.

BUSINESS ENTREPRENEUR

ENTR1170 Introduction to Small Business

2 cr.

Students taking this course will learn what it takes to own, operate, and grow a small business successfully. The student will learn the personal traits and characteristics necessary to succeed in the fast-paced small business environment. This course will also examine the various ways small business can start. Some of these ways include starting a business from scratch, buying an existing business, or buying a franchise. Various case studies will be examined as to why some businesses fail, while other succeeds. 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.

ENTR1440 Successful Marketing Strategies for Small Business

4 cr.

Students will be given a complete overview of all aspects of marketing for a small business. Specific topics will include research, determining the target market, developing a marketing strategy, identifying over 30 marketing tactics, and positioning. The student will be exposed to various case studies and will use these to develop a marketing strategy for a specific product or service. The student will also create a complete market plan and present that plan to the class.

ENTR1650 Selling Strategies for the Entrepreneur 3 cr.

The success of an entrepreneurial venture is directly related to entrepreneur's ability to constantly and consistently sell. The student will learn the three vital aspects of small business selling including, one on one selling, presentation selling, and creating win/win negotiations. Even if the student has never sold before, they will become proficient at all aspects of the sales, presentation, and the negotiation process. The student will have the opportunity to practice multiple aspects of selling in a safe classroom environment. In addition, the student will develop specific sales strategies for their individual business and be able to "try" these strategies with other members of the class.

ENTR1860 Business Plan Development

3 cr.

This course will give the student all the necessary tools to create a business plan that gets results. The student will, during the course of the semester, create his or her own business plan, which is the main objective of the course. The business plan process will be broken down into five areas: vision, customers product/service, numbers, and team. Numerous business plans will be examined and good points and bad points will be examined in each. Students will also be given the opportunity to present their plans to the group in a safe setting and have them critiqued for clarity and effectiveness.

ENTR1900 Capitalizing a Small Business

2 c

This course will provide the student with the information and tools necessary to fund a small business. The student will be exposed to various methods of raising both start-up and operating capital. These methods include bank loans, SBA loans, venture financing, and grant opportunities. The student will practice presenting his or her company in preparation for presenting to bankers and investors. Prerequisites: ENTR1860 or may take courses concurrently.

CHEMISTRY

CHEM1500 Introduction to Chemistry

4 cr.

This course is a broad introduction to chemistry, its principles and applications. It is intended for the non-science major. Topics include the scientific method, atomic structure, periodic table, general properties of matter, the development of the model of the atom, basics of chemical bonding, chemical equations and their uses, acids and bases and oxidation reduction. Meets MnTC Goal 3.

CHILD DEVELOPMENT

CDEV1200 Professional Relations in Early Childhood Careers

3 cr.

This course explores career opportunities for working with children in a variety of child development programs. This course also examines job requirements, duties, regulations, issues, skills, and personal characteristics for becoming successful professionals in early childhood settings. **Articulated**

CDEV1201 Professional Relations in Special Education 3 cr.

This course will explore career opportunities for working with children in a variety of school settings. This course examines the philosophical, historical and legal foundations of special education, characteristics of learners, assessment, diagnosis and evaluation of students, current instructional content and practice, supporting the teaching and learning environment, managing student behavior and social interaction skills, communication and collaborative partnerships, professionalism and ethical practices.

CDEV1205 CDA Professional Resources

1 cr.

This introductory course defines the processes and procedures used in obtaining the National Child Development Associate (CDA) credential. Students will develop the Professional Resource File required by the Council for Professional Recognition.

CDEV1206 Parent and Professional Relations 2 cr.

This course explores a variety of topics regarding duties, regulations, issues and skills necessary to becoming an early childhood professional and in establishing a positive relationship with parents and coworkers.

CDEV1210 Foundations of Child Development I 3 cr

This course provides an overview of typical and atypical child development across cultures from prenatal through school age, including physical, social, emotional, language, cognitive, aesthetic and identity/individual development. It integrates developmental theory with appropriate practices in a variety of early childhood care and education settings. **Articulated**

CDEV1220 Child Safety, Health, and Nutrition 4 c

This course will guide the student in obtaining skills needed to establish and maintain a physically and psychologically safe and healthy learning environment for young children. Topics include preventing illness and accidents, handling emergencies, providing health, safety and nutrition educational experiences, meeting children's basic nutritional needs, drug/chemical abuse, child abuse and current health-related issues. (NOTE: This course does not include CPR or First Aid certification.) **Articulated**

CDEV1230 Guidance and the Early Childhood Environment

This course provides an exploration of the physical and social environments that promote learning and development for young children. It includes an introduction to basic child guidance techniques for individual and group situations with emphasis on problem prevention and positive guidance strategies, recognition, communication, limit setting, problem solving and behavior modification. Students apply their knowledge of the environment's role in an actual work setting. **Articulated**

CDEV1320 Foundations of Child Development II 4 cr.

This course provides the opportunity to examine child development theory and practice in greater depth. Students will integrate knowledge of developmental needs, developmentally appropriate environments and appropriate observation and recording methods. Prerequisites: CDEV1210.

CDEV1340 Planning and Implementing Curriculum 3 cr.

This course examines the role of the teacher in early childhood settings. It applies the knowledge of child development as it relates to individual children, communities, curriculum and communication activities. Prerequisites: CDEV1210.

CDEV1510 Internship I

3 cr.

4 cr

This course provides an opportunity to apply knowledge and skill in an actual child development setting. Students will observe and assess children's behavior, facilitate free-choice play, implement adult-directed learning experiences, and maintain professional relationships. Prerequisites: CDEV1200, CDEV1210, CDEV1220, and CDEV1230 and/or instructor's permission.

CDEV2320 Profiles of the Exceptional Child

3 c

This course examines the development of children with special needs and prepares caregivers to integrate children with special needs into child development settings. Prerequisites: CDEV1210.

CDEV2330 Advanced Child Guidance 3

This course provides students with the opportunity to further examine guidance techniques and intervention strategies that are effective in dealing with children displaying a wide range of behaviors. Emphasis will be placed on the prevention and resolving of problem behaviors, use of behavior modification techniques, working with parents and designing behavior plans. Prerequisites: CDEV1210, CDEV1230.

CDEV2500 Shadow Study

This course provides students an opportunity to shadow a master teacher in a child development setting. Course goals are based on individual need. Emphasis may include observation of various child development settings, adult-child interaction or the role of a caregiver. Prerequisites: Instructor's permission.

CDEV2540 Sensory/Motor Learning Experiences

This course provides an overview of sensory/motor learning experiences in either home- or center-based settings. Students integrate knowledge of child development, learning environments, and teaching methods to promote sensory, fine motor, gross motor, perceptual-motor, and self-care skill development. Prerequisites: CDEV1210 or instructor's permission.

CDEV2550 Cognitive/Multimedia Learning Experiences 3 cr.

This course provides an overview of cognitive and multimedia learning experiences in either home- or center-based settings. Students integrate knowledge of child development, learning environments, and teaching methods to promote curiosity, attention, perception, memory, problem solving, logical thinking and media literacy. Prerequisites: CDEV1210 or instructor's permission.

CDEV2560 Language and Literature Learning Experiences 3 cr.

This course provides an overview of language, literacy and literature learning experiences in either home- or center-based settings. Students integrate knowledge of child development, learning environments, and teaching methods to promote whole language, conversation, literature, literacy and bi-lingualism. Prerequisites: CDEV1210 or instructor's permission.

CDEV2570 Multicultural Learning Experiences 3 cr.

This course provides an overview of multicultural learning experiences in either home- or center-based settings. Students integrate knowledge of child development, learning environments, and teaching methods to promote social-emotional development, self-esteem, and prosocial skills in a diverse society. Prerequisites: CDEV1210 or instructor's permission.

CDEV2574 Contemporary Issues in Child Care 3 cr.

This course gives students an opportunity to examine ways in which current societal and community issues impact the development of children and the well being of families. Cultural diversity and dynamics, bias and community resources including social services, are explored.

CDEV2580 Creative Development Learning Experiences 3 cr.

This course provides an overview of creative/aesthetic learning experiences in either home- or center-based settings. Students integrate knowledge of child development, learning environments and teaching methods to promote children's artistic, musical, movement and dramatic abilities. Prerequisites: CDEV1210 or instructor's permission.

CDEV2590 Social/Emotional Learning Experiences 3 cr

This course provides an overview of social, emotional, and moral learning experiences in either home- or center-based settings. Students integrate knowledge of child development, learning environments, and teaching methods to promote emotional development, self-concept, self-esteem, social skills, diversity awareness, social studies, perspective taking, moral responsibility, altruism, and values. Prerequisites: CDEV1210 or instructor's permission.

CDEV2600 Professional Leadership

3 cr.

This course prepares students to take an active/advocate role in the child development profession by examining the history, current trends and future of childcare and early childhood education.

CDEV2640 Program Planning

3 cr.

This course provides an advanced-level exploration of program management skills for caregivers of young children. Emphasis is on organizing, implementing and evaluating a quality, comprehensive childcare program plan. Prerequisites: Technical college diploma in Child Care.

CDEV2700 Project Exceptional I

1 cr.

This course is Part I of Project Exceptional Minnesota's original curriculum. The course will examine the inclusion of children with special needs into quality child care environments. Students will gain knowledge of historical and family perspectives to help provide respectful and sensitive care to children with special needs.

CDEV2701 Project Exceptional II

2 cr.

This course is Part II of Project Exceptional Minnesota's original curriculum. The course will explore components of successful parent-provider relationships. It will look at fostering nurturing care for children at risk for behavior challenges or developmental delays. This course will also examine how to identify and refer a child with developmental concerns.

CDEV2702 SP/Needs III

2 cr.

This course will examine the educator's role, environment, observation, children's temperament and strategies. The course will focus on children who have or are at risk for challenging behavior.

CDEV2703 Project Exceptional: First Signs: 1 cr. Red Flags and Referrals

First Signs is a national training model that disseminates key information about developmental red flags as they relate to Autism and key referral information for educators to share with parents. Part of MN. Project EXCEPTIONAL that includes a unit on sharing concerns with families as part of the First Signs Training Workshop.

CDEV2704 Transforming the Difficult Child: 1 cr. The Nurtured Heart Approach

This course examines The Nurtured Heart Approach, based on the work of Howard Glasser. This unique approach is designed to help anyone working with children who have challenging behaviors. It combines four basic strategies for helping caregivers transform the way we see children who have high energy and high intensity from a challenge to a gift.

CDEV2710 Infant Toddler Social Emotional 1 cr. Growth and Develop

This module will explore infant and toddler social-emotional development for in-home and center-based settings. Students will integrate knowledge of temperaments and ages and stages of development so caregivers can create nurturing relationships, use positive child guidance techniques and develop positive social skills for infants and toddlers. Prerequisites: CDEV1210.

CDEV2711 Infant Toddler Routines and Environments 1 cr

This module will explore ways to create developmentally appropriate environments and caregiving routines. Students will integrate knowledge of developmentally appropriate caregiving and teaching strategies in order to create a safe, healthy learning environment for infants and toddlers. Prerequisites: CDEV1210.

CDEV2712 Infant Toddler Language and 1 cr. Cognitive Development

This module will examine infant toddler language and cognitive development for in-home and center-based settings. Students will integrate knowledge of observation methods and ages and stages of development in order to facilitate infant-toddler language and cognitive growth and development. Prerequisites: CDEV1210 or instructor permission.

Culture, Family, and Providers

This module will examine ways to be culturally sensitive and build partnerships with parents. Students will integrate knowledge of culturally sensitive/responsive caregiving techniques and curriculum approaches in order to enhance the learning environment of infants and toddlers from diverse backgrounds. Prerequisites: CDEV1210 or instructor permission.

Sign Language in Early Childhood

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.

Supporting the School-Age Learner in Math 1 cr. This course combines an understanding of how children learn math and how to promote that learning by supporting the instruction in a primary/elementary classroom.

CDEV2721 Supporting the School-age Learner in Writing1 cr. This course combines the understanding of how children learn writing and how to promote that learning by supporting instruction in a school aged classroom.

CDEV2722 **Supporting the School-age** Learner in Reading

This course combines an understanding of how children learn reading and how to promote that learning by supporting the instruction in a primary/elementary classroom setting.

CDEV2723 Choices: Keys to Quality for School-Age Programs

1 cr.

1 cr.

In this course you will learn how to structure your environment, not the children. You will learn why we should give school age children choices. What can we do about setting limits and the consequences we give? Through many different activities participants will enjoy learning how to define, establish, and implement choices in their childcare setting. You will also examine how to involve children in making healthy choices and establishing choices that are developmentally appropriate will also be explored.

CDEV2724 **Child Guidance for School-Agers: Nurture & Growth**

This course emphasizes the basics in communication, relationships, guidance strategies and understanding child/youth development as the foundation to successful behavior guidance. Participants will improve communication skills, better under-stand human relationships and their own beliefs, as well as identify strategies for handling conflicts in settings.

CDEV2730 Learning To Use the Ounce Scale

The Ounce Scale is an early childhood assessment tool used to support observation skills in early childhood settings. It is specifically designated to better understand children from birth to 42 months. It provides a system for understanding children, planning curriculum, communicating with parents and assessing child development.

CDEV2840 Practicum

This course provides an opportunity to apply knowledge and skill in program planning for early childhood/special education leadership roles. Students identify, design, implement, and analyze a comprehensive program that includes schedules, daily plans, sensitivity to needs of individual children and families, integration of children with special needs, integration of community resources, co-operation with co-workers, and staff development considerations. Prerequisites: Instructor's permission.

CIVIL ENGINEERING

Introduction to Civil Engineering Technology 1 cr. Introduces basic skills required for a career in civil engineering technology, focusing on the roles and responsibilities of the engineering team, professional ethics, problem solving with hand calculator and

computer applications. Introduces civil engineering materials and analysis, standard laboratory procedures and reporting.

Basic Computer Aided Design

First course in computer aided design (CAD) labwork using AutoCAD software. Topics include fundamentals of DOS, AutoCAD command structure, setting units and limits, drafting primitives, layering, use of editing tools, grid, snap, and axis commands. Assignments requiring extensive use of the CAD lab.

Beginning Surveying

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.

CIVL1140 Civil Engineering Technology 2 cr. and Government

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

Students develop basic skills in applications of geographic information systems (GIS). Through hands-on projects, students will learn how to use GIS software, plan a project, create a database, conduct spatial analysis and create presentation graphics. No official prerequisites are required, but students should have basic computer literacy skills.

CIVL1160 **Civil Engineering Project Management**

This course will provide student with the knowledge and skills necessary to plan, organize and control a Civil Engineering Technology project. It will introduce the student to basic project management concepts and reinforce those concepts through the use of automated project management software.

CIVL1210 Materials Testing

This course familiarizes students with lab and testing procedures for testing construction materials. Topics include sieve analysis, relative density, compaction tests, Atterberg limits, and soil classification, concrete strength testing, and bituminous sampling.

CIVL1220 Civil Engineering Technology Drafting

An introduction to large scale mapping as used in highway and site design. Laboratory exercises include preparation of site plans, boundary surveys, and road plans. Laboratory exercises make extensive use of bearings and azimuths for line direction and location utilizing Cartesian Coordinates, elevation is represented by contours and profiles.

CIVL1230 Intermediate Surveying

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.

GPS and Construction Staking CIVL1240

A course on fundamental construction layout principles required for typical construction projects. Topics include: basic control networks, coordinate systems and coordinate geometry, alignment and grade for structures, roadway, and utilities, data collector use, and RTK GPS data acquisition, positioning, and mapping.

COMMUNICATIONS

COMM1221 American Sign Language - Level I

3 cr.

This course is an introduction to American Sign Language (ASL), visual/gestural Language used by deaf people in the United States and parts of Canada. Communicative functions, vocabulary, grammar and cultural aspects of the deaf community are included.

COMM1223 American Sign Language - Level II

This course is designed for students who have some knowledge of ASL or have completed level 1 (American Sign Language) in the past. It features an introduction to the next level of ASL including classifiers, idioms, numbers, fingerspelling, fingerspelled loan signs, and commands. The course will be include gestural communication techniques, visual discrimination and sentences. Receptive and expressive sign vocabulary building will be featured through class activities leading to basic and intermediate conversational skills in ASL. Information about the deaf community and its culture will be featured. Prerequisites: COMM1221.

COMPUTER LITERACY

COML1400 Introduction to Computers 3

This online-enhanced course covers the basics of using Personal Computers (PC's) and the Microsoft Office Professional suite of programs, including Word, Excel, Access and PowerPoint to create documents, spreadsheets, databases and presentations. Students will also be introduced to the Internet, e-mail and the history of computers.

COMPUTERS & SOCIETY

COSO1000 Computer and Society Basics

1 cr.

This course covers basic information on operating system software, word processing software and presentation software, students will be introduced to the Internet, including ethics and security, information literacy and navigating an online platform.

COSO1050 Computers and Society Essentials 2 c

This course covers the basic information on computer hardware, operating system software, word processing software and presentation software, as well as an introduction to spreadsheet and database software. Students will also learn about the Internet, including ethics and security, information literacy and navigation in an online platform.

CONCRETE AND MASONRY

CONC1600 Shop Theory

2 cr.

Students examine the IBC/IRC as it applies to residential and commercial practices. OSHA regulations covering construction and job-site safety are covered.

CONC1601 Shop I: Site Preparation for Construction 6 cr.

In this course students will evaluate and manage site preparation for foundations and flat concrete work. Excavation and fill requirements, managing construction site ground conditions, subcontractor considerations, and building layout will be included.

CONC1602 Shop II: Brick and Block Construction

This course will develop skill in concrete block construction. The course will utilize practice applications and actual construction projects. Cold weather shelter construction and block laying will be included

CONC1604 Foundations, Concrete and Safety for Masons4 cr.

This is an intro-level course constructing footings and foundations. Techniques, procedures and practices for concrete block, poured walls, and flatwork are studied. Building forms for flatwork and walls are also studied.

CONC1605 Math for Masons

2 cr.

The students use basic mathematics as it relates to the building construction industry. Students perform fundamental construction applications.

CONC1606 Properties and Testing of Mortar and Concrete

3 cr.

This course will provide students with an understanding of the effects of concrete materials on concrete construction. Aggregate properties, cement properties, supplemental materials, and admixtures will be discussed. Concrete mix proportioning and hardened concrete properties will be included in this course.

CONC1610 Concrete Problems: Diagnosis, 2 cr. Prevention and Resol

This course is focused on quality in concrete construction by teaching awareness of potential problems. Instruction will teach diagnosis and resolution of problems in fresh and hardened concrete. Customer job relations is integrated into the problem resolution instruction.

CONC1613 Shop III: Advanced Brick 4 cr. and Block Construction

This shop class would incorporate actual projects at various job sites to gain skills in flat and or poured concrete applications. Applications would include residential, agricultural, renovation, and commercial construction.

CONC1614 Shop IV: Integrated Concrete Systems 4 cr.

This course is hands-on remodeling and new construction projects. The work will be done on-site and will integrate applications learned from previous courses for site preparation, concrete block, and poured concrete. The focus will be to build proficiency in concrete working skills and will include form work on the job.

CONC1615 Blueprint Reading Estimating

2 cr.

This course is designed to teach an understanding of building principles and how the specifications and requirements are presented through blueprints. Basic blueprint reading is addressed.

DENTAL ASSISTANT

DENT1100 Dental Science

4 cr.

This course provides an overview of basic normal body structure and function including an understanding of the common disease process. Special attention will be given to a comprehensive overview of the oral anatomical structures, functions, and development of the oral cavity, as well as the identification of structures of the head and neck and their functions. Prerequisites: Admission to Dental Assisting Program. **Articulated**

DENT1110 Pre-Clinical Dental Assisting 3 cr.

This course will introduce the student to the health and safety considerations for basic infection control and dental emergencies. Topics will include occupational exposure risks, personal protection, exposure control, hazard communication standards, and medical waste disposal, as defined by government guidelines and regulations including OSHA standards. Special attention will be given on how to reduce the risk of transmission of disease commonly found in the dental office between dental assistants and patients, including various sterilization and disinfection techniques. This course will also discuss the prevention and treatment of medical emergencies commonly found in the dental office. The student will have a basic understanding of the classification, administration, use, and effects of drugs commonly used in a dental office. Prerequisites: Admission to Dental Assisting Program. **Articulated**

DENT1120 Dental Health

2 cr.

This course is designed to provide the student with the knowledge necessary to instruct a patient in proper oral hygiene and explain the benefits of fluoride. It also will provide the students with basic nutritional concepts and their practical applications. Prerequisites: Admission to Dental Assisting Program.

DENT1130 Chairside Assisting I

3 cr.

This course introduces the student to the fundamentals of working in a dental office setting as a chairside assistant. It introduces concepts and techniques of basic equipment, supplies, fourhanded dentistry, oral evacuation, and instrument identification and proper use. This course also provides an introduction to the psychology of patient management skills necessary for effective interaction with patients. Prerequisites: Admission to Dental Assisting Program. **Articulated**

DENT1140 Dental Materials

3 cr.

This course provides the student with the knowledge and practical application of dental materials commonly found in the dental office. Emphasis will be on chemical and physical properties, uses, types, and applications. Students will be able to identify uses for specific dental products and be aware of specific care and storage properties of various materials. Prerequisites: Admission to Dental Assisting Program.

DENT1250 Radiology

5 C

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.

DENT1270 Chairside Assisting II

3 cr

This course furthers knowledge of chairside assisting duties by presenting concepts of charting, tray set-ups, and the restorative process to help further the development of basic skills of four-handed dentistry. This course also introduces basic concepts of the different specialties in dentistry. The student will be taught to identify the instruments, materials, and procedures needed to gain skills in assisting the dentist with each specialty. Prerequisites: Admission to Dental Assisting Program.

DENT1280 Dental Practice Management

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

7 cr.

This course provides the student with actual experience assisting in an off-campus clinical setting in private dental offices, group practices, or specialty dental offices. Prerequisites: Prior completion of all Dental Assisting courses or instructor approval.

ECONOMICS

ECON1100 Principles of Microeconomics

3 cr.

This course is an introduction to price mechanisms, supply and demand, resource allocation, analysis of market structures, distribution of income, and business decisions regard to cost analysis. Meets MnTC Goal 5.

ECON1200 Principles of Macroeconomics

3 cr.

This course analyzes the interactions between all segments of the economic system. The course will focus on savings and investment, aggregate supply and aggregate demand, the monetary system, unemployment and inflation, and fiscal policy. Additional topics may include the balance of payments and currency exchange rates determination. Prerequisites: College Algebra and Writing. Meets MnTC Goal 5.

ELECTRICAL CONSTRUCTION & MAINTENANCE

ELEC1110 D. C. Electricity Theory and Lab

3 cr.

This course covers investigation of direct current and its behavior in series, parallel, and series/parallel circuits; measuring devices and components; and electromagnetism. **Articulated**

ELEC1120 A. C. Electricity Theory and Lab

3 cr.

This course covers investigation of alternating current and its behavior in resistive and reactive series, parallel, and series/parallel circuits; use of test instrumentation; electromagnetic induction; and resonation. **Articulated**

ELEC1130 National Electrical Code I

3 cr.

This course covers the requirements of the National Electrical Code.

ELEC1140 Blueprint Reading for Technicians

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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/Digital Electronics Theory

2 cr.

This course covers the theory of semiconductors, power supplies, amplifiers, digital circuits, microprocessor applications, sensors, and signal coupling materials/devices. Prerequisites: ELEC1110, ELEC1120, MATS1205.

ELEC1220 Analog/Digital Electronics Lab 4

This course covers connecting, testing, and analyzing semiconductors, power supplies, amplifiers, digital circuits, microprocessor applications, sensors, and signal coupling materials/devices.

ELEC1231 Construction Skills & Intro to Wiring Theory 3 cr.

This course covers material and design of residential wiring, wiring methods, selection of proper fastening devices, sizing of wire and boxes, branch circuit requirements and use of blueprints. Prerequisites: ELEC1110, ELEC1120, MATS1205.

ELEC1241 Construction Skills and Introduction to Wiring Lab

6 cr.

This course covers lab experiences in material and design of residential wiring, wiring methods, selection of proper fastening devices, sizing of wire and boxes, branch circuit requirements, and use of blueprints. Prerequisites: ELEC1110, ELEC1120, ELEC1130. **Articulated**

ELEC2110 Electrical Apparatus Theory

3 c

This course covers the principles of direct current motors, singleand three-phase motors and transformers, and proper use of meters and test equipment. Prerequisites: ELEC1110, ELEC1120, MATS1205.

ELEC2120 Electrical Apparatus Lab

6 cr.

This course covers analysis and troubleshooting of direct current motors, single-and three-phase motors, transformers, and proper use of meters and test equipment. Prerequisites: ELEC1110, ELEC1120, MATS1205.

ELEC2131 Programmable Logic Controllers Theory 2 cr.

This course covers theory of logic applications; connecting, programming, and operating programmable logic controllers; and AC and DC electronic drives. Prerequisites: ELEC1110, ELEC1120, ELEC1210, ELEC1220.

ELEC2141 Programmable Logic Controllers Lab

4 cr.

This course covers analysis and troubleshooting of logic applications; connecting, programming and operating programmable logic controllers; AC and DC electronic drives; and motor controls. Prerequisites: ELEC1110, ELEC1120, ELEC1210, ELEC1220.

ELEC2210 National Electrical Code II

3 cr.

2 cr.

This course covers continued requirements of the National Electrical Code. Prerequisites: ELEC1130.

ELEC2220 Electrical/Electronic Controls and Systems Theory

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 4 cr. Controls and Systems Lab

This course covers analysis and troubleshooting of programmable logic controllers, AC and DC electronic drives, energy management systems, heating and cooling systems, fire alarm and security systems, and integrated voice/video/data and infrared systems. Prerequisites: ELEC2130, ELEC2140.

ELEC2241 Industrial & Maintenance 3 cr. Wiring Theory & Lab

This course covers the use of materials and design of industrial wiring, industrial tools and equipment, service equipment, and maintenance technology. Prerequisites: ELEC1231, ELEC1241.

ELEC2251 Commercial & Maintenance 3 cr Wiring Theory & Lab

This course covers the use of materials and design of commercial wiring, commercial tools and equipment, service equipment, and maintenance technology. Prerequisites: ELEC1231, ELEC1241.

ELEC2260 Heating, Ventilation, and 3 cr. Air Conditioning Wiring

This course covers the use of materials and design of materials and equipment for heating, ventilating, and air conditioning residential, commercial and industrial buildings. Prerequisites: ELEC1231, ELEC1241.

ELECTRICAL LINEWORKER

ELLW0098 Introduction to Climbing

This course covers the introduction to the equipment used for climbing. The use of this equipment will be applied to the act of learning to climb safely and correctly.

ELLW1110 Distribution I

4 cr.

This course covers the task of learning to climb safely along with the use of digger/derrick units. It includes an introduction of the materials and their applications, along with an introduction to the application of rigging to the industry. The safety aspect of the industry is stressed in these applications. Prerequisites: ELLW0098.

ELLW1120 Utility Equipment and Tools

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This course offers an introduction to the tools used in the line industry. Personal tools, climbing tools, and the introduction to the safe operation of carrier-mounted devices are included. The digger/derrick and the personnel-carrying aerial devices will be covered. Prerequisites: ELLW0098.

ELLW1130 Basic Electricity

2 cr.

This course covers the introduction to electrical circuits and magnetic circuits, both AC and DC. The student will use mathematics to calculate voltage, resistance, and current in each type of circuit. This course is an introduction to the use of formulas needed to do the calculations that the 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 cr.

This course covers the construction aspects in the building of single-phase lines and the use of plan profiles, specification drawings, material lists, and their application to the field. It includes the equipment that will be used for this construction. Hot line work with sticks will also be introduced at this time. The hanging of guys, the stringing of conductors, anchor installations, industry framing practices, and safety in all line building, equipment operations, and material handling will be observed and practiced. Prerequisites: ELLW1110, ELLW1120, and concurrent enrollment in ELLW1141.

ELLW1141 Distribution IIB

4 64

This course covers more of the material that is in ELLW1140. 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 cr.

This course covers the theory and applications of transformer principles of magnetic and electrical circuits for primary and secondary connections. Understanding of polarities is examined and applied. Use of the different types and possibilities of connections will also be covered, with the needed information for choosing the loading, transformer types and sizes, and the fusing of the same. Prerequisites: ELLW1130.

ELLW1162 Transformers II

4 cr.

This course covers the actual mounting and connecting of the transformers to the primary and secondary systems, including the use and installation of over-current and over-voltage protection. The use of closed and open banks will be applied, as well as the paralleling of same. Safety of both the primary and secondary applications will be covered and used in all applications. Prerequisites: Concurrent enrollment in ELLW1160.

ELLW1170 Line Construction and Maintenance A 4 of

This course covers the conversion of single-phase to multi-phase applications. The use of three-phase hot stick line applications will be applied to the changing of poles, deadends, crossarms, and running angles. The maintenance of three-phase systems will be applied. The use of insulated fiberglass boards and ladders, nylon hot line hoists, and block and tackle will be applied. Safety applications will be emphasized at all times throughout this course. Prerequisites: Concurrent enrollment in ELLW1172.

ELLW1172 Line Construction and Maintenance B 4 cr.

This course covers the continuation of line construction and maintenance. The application of ties, standard and preformed with sticks and live line applications, is covered. The use of protective coverup materials for lineman and support structures is covered. The transferring and handling of energized conductors using temporary supports, etc. are also covered. Prerequisites: Concurrent enrollment in ELLW1170.

ELLW1180 **Underground Cable and Fault Locating**

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

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.

EMERGENCY CARE

EMRG1007 **Emergency Medical Technician (EMT)**

6 cr. This course provides basic training in emergency medical care. It is designed to teach and develop skills necessary to emergency care of the critically ill or injured. Emphasized in the course: The role of the EMT consists of safety concerns, patient assessment, airway management, trauma and medical emergencies. This course consists of lecture, skills, and clinical experience in a hospital setting. This course meets the approval of the Minnesota Emergency Medical Services Regulatory Board (EMSRB). Upon successful completion, students will be eligible to take the National Registry of EMT's written and practical examinations for National Certification. Prerequisites: HEAL1010 prior to EMT course completion or concurrent with HEAL1010.

EMRG1008 EMT Refresher

This course provides basic renewal training for the emergency medical technician. It is designed to teach and develop skills necessary for re-certification as an EMT as mandated by the MNEMSRB. Emphasized in the course: The role of the EMT consists of safety concerns, patient assessment, airway management, trauma and medical emergencies. This course consists of lecture and skills. This course meets the approval of the Minnesota Emergency Medical Services Regulatory Board (EMSRB). Upon successful completion, students will be eligible to take the National Registry of EMT's written and practical examinations for National Certification. Prerequisites: Student must provide proof of a current Healthcare Provider CPR card, plus MN. EMT number and expiration date.

First Responder

This course is design for individuals who are first on the scene of a medical or trauma emergency. It is designed to teach responsibility in emergency care of the seriously ill or injured, as well as develop the skills and knowledge necessary to manage patient care until the arrival of ambulance personnel. Upon successful completion of the First Responder course students will be certified through the Minnesota Emergency Medical Services Regulatory Board.

EMRG1018 First Responder Refresher

This course provides basic renewal training for individuals who are currently certified as First Responders. It is designed to teach and develop the most current skills and knowledge necessary to maintain certification through the Minnesota Emergency Medical Service Regulatory Board (EMSRB) as a First Responder. Prerequisites: CPR for the Professional Rescuer (AHA Healthcare Provider), you must also provide MN. First Responder number and expiration date.

ENGLISH

2 cr.

3 cr.

ENGL0114 College Reading I

3 cr.

The course is designed to develop the effective reading and clear thinking skills that are required to be successful in college today.

Basic English and Writing Review

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 cr.

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 cr.

A basic writing course that introduces students to the principles of composition. It includes such areas as organizational development, expository, and persuasive paragraphs and short essays. All relevant modes of communication, essential in the workplace are addressed, including memos, letters, reports, faxes and Internet endeavors. The course fosters the development of important cognitive abilities such as analysis, synthesis, interpretation and evaluation. Prerequisites: Appropriate assessment score or instructor's approval.

ENGL0215 College Reading II

This course is designed to develop effective reading and clear thinking skills that are required to be successful in college today.

ENGL1000 **Applied Business Writing**

This course provides students with the skills needed to effectively communicate in writing in the technical work place. Students will be required to use critical analysis and logical reasoning skills in the preparation of course assignments. Applications focus on specific report formats. The course is for students in technical diploma programs. Prerequisites: Enrollment by advisor or counselor approval.

ENGL1150 Composition I

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. Prerequisites: Must pass Accuplacer test or successfully complete ENGL0130 or instructor approval. Meets MnTC Goal 1.

ENGL1300 **Introduction to Creative Writing**

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. Prerequisites: Must meet qualifying scores on ACCUPLACER test OR successfully complete ENGL0130 OR receive instructor's approval. Meets MnTC Goals 1 & 6.

ENGL1400 **American Short Story**

3 cr.

This course emphasizes the review and analysis of examples of the short story format. These stories will be by various American writers from the period 1789 to the present. Also included in the course content are critical reading and logical reasoning. Meets MnTC Goal 6.

ENGL1550 **Introduction to Literature**

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.

ENGL1625 Film Studies

4 c

This course emphasizes the review and analysis of films. This will include how movies reflect and shape the hopes, dreams, and aspirations of the society that produces them. These films will be from various genres and span the entire time frame that movies have been a popular phenomenon. Also included in this course is logical reasoning. Meets MnTC Goal 6.

ENGL1650 Greek Mythology

cr.

This course emphasizes the review and analysis of various Greek myths. This will include how these myths have reflected and shaped art and history. Also included in the course are critical reading and logical reasoning. Meets MnTC Goal 6.

ENGL1750 Fantasy and Science Fiction Literature 3 cr.

This course emphasizes review, analysis and discussions of the genres of fantasy and science fiction. Evaluations and points of view for these genres are also considered. The works are viewed as reflections of real contemporary issues in environmental, technological, cultural, religious, economic and political spheres, and the role of the world citizen dealing with these issues is discussed. Prerequisites: Recommended ACCUPLACER reading score over 62. Meets MnTC Goal 6.

ENGL1800 Mystery and Detective Literature 3

This course introduces the study of mystery and detective literature. There is an emphasis on exploring the relationship between contemporary mystery fiction and the stories of antiquity. Students will read a wide variety of literature and explore the texts through a variety of different literary approaches. The course will introduce students to such basic concepts as plot structure, point of view, characterization, imagery and symbolism, setting, tone, irony, and style. Meets MnTC Goal 6.

ENGL2000 Composition II

3 cr

This course will offer challenging insights into the act of writing. Students will continue to strengthen their writing skills while engaging in analysis of literary texts and secondary sources. In writing critical essays based on that analysis, students will apply rhetorical strategies related to purpose, audience, genre and context. Prerequisites: ENGL1150. Meets MnTC Goals 1 & 6.

ENGLISH FOR SPEAKERS OF OTHER LANGUAGES

ESOL0030 ESOL Listening and Speaking I

4 cı

4 cr.

In this intermediate level course, non-native speakers will work to understand the meaning of messages beyond day to day comprehension for survival. It is intended to help students increase proficiency in listening comprehension, pronunciation, and fluency. Students will also learn strategies that will lead to language acquisition. Prerequisites: A beginning level background in English and the required Accuplacer score.

ESOL0032 ESOL Reading I

This course covers the basics of reading English for non-native speakers at the intermediate proficiency level. Prerequisites: A beginning level background in English and the required Accuplacer score.

ESOL0035 ESOL Writing and Grammar I 4 ci

This course is part one of a study and review of basic English grammar and writing for non-native students at the intermediate proficiency level. Prerequisites: An appropriate score on the Accuplacer.

ESOL0040 ESOL Listening and Speaking II

In this intermediate level class, students will focus on listening comprehension and speaking. It is intended to help students increase proficiency in listening comprehension, pronunciation, and fluency. Prerequisites: An appropriate score on the Accuplacer or satisfactory completion of ESOL0030.

ESOL0042 ESOL Reading II

4 cr.

This course continues the study of the basics of reading English for non-native speakers at the high-intermediate to the low-advanced proficiency level. Prerequisites: ESOL0032 or the required Accuplacer Score.

ESOL0045 ESOL Writing and Grammar II

4 cr

This course is a study and review of English grammar and writing for non-native students at the intermediate to advanced proficiency level. Prerequisites: An appropriate score on the Accuplacer or satisfactory completion of ESOL0035.

EXERCISE & SPORT SCIENCE

EXER1000 Intro to Human Performance Studies

3 cr

Introduction and orientation to the fields of and related to physical education, sports management and exercise science. Includes an overview of aims, objectives, values, issues, qualifications and opportunities in related professions as well as a brief historical perspective of sport as an industry.

EXER1015 Personal Health and Wellness 3

3 cr.

A comprehensive course that focuses on disease prevention, physical activity, nutrition, and general health facts. The course is designed to help each student take responsibility for their overall health and learn practical ways of achieving a safe and healthy lifestyle. Course topics include self-assessment, wellness improvement plan, personal program design, exercise research investigation, and exercise critical thinking issues. Course syllabus information is subject to change without notice.

EXER1020 Strength Training

2 cr.

This course is an introductory course to strength or resistance training. Students will perform more than four different workouts during the course of the semester designed for various levels of resistance training expertise. Topics covered during lecture include: skeletal and muscular anatomy and physiology, program design, lifting safety, weight room etiquette, and strength plateaus.

EXER1025 Physical Conditioning

2 cr.

3 cr.

This course is designed to teach students the numerous methods involved in the training of individuals and athletes in order to develop conditioning to achieve a desired effect. The course will focus on training students to become proficient in the use of plyometric exercise as well as spring mechanics, speed development, flexibility training, aerobic maintenance, and agility work. Specificity toward skills to be developed will be emphasized.

EXER1027 Olympic and Explosive Weightlifting 2

This intermediate-level course is intended to teach students elite strength training methodologies and techniques designed to develop athletes to a high level of performance. The course will give students a working knowledge on program design, nutrition, recovery, metabolic considerations, and the biomechanics involved in the sport of Weightlifting as well as elite athlete strength training. The course provides each candidate with a body of knowledge and expertise to enable a student to teach and train higher-level athletes in explosive free weight movements safely and effectively. At the end of the course, the USA Weightlifting Senior Coach exam will be given. Each student will have the opportunity of gaining a USA Weightlifting Senior Coach Certification after completing the strength-training course.

EXER1045 Organization and Management of Sport

Designed to introduce students to the functions of management and practical use of management skills as they relate to sporting activities and events. Includes basic study of organization, budget, legal aspects and leadership.

EXER1050 Nutrition for Health and Human Performance 3 cr.

This course will provide the student with introductory nutritional information for health, fitness and sports performance. Course content includes: classification and function of nutrients, body composition and weight management, dietary supplements and ergogenic aids, energy and metabolism, and eating disorders.

Psychology of Sport and Performance

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**

Development and refinement of skills encountered through training, competing or organizing a number of team games such as flag/touch football, softball, soccer, speedball, volleyball and basketball.

EXER2020 Personal Training I

2 cr.

An introductory course to the business of personal training. This course will focus on the fundamental concepts in personal training for healthy, general populations. Topics include: program design, nutrition, health and fitness assessments, and legal and ethical issues.

EXER2030 Weight Management

2 cr.

This is an introductory weight management course for students interested in improving their lives through a weight management program and for students who are interested in working with clients on a consultant basis. Topics included during this course include: behavior modification, goal setting, nutrition, physical activity, diet fads, weight loss and weight gain, client interaction, and professional legal and ethical responsibilities.

EXER2060 **Personal Training II**

A lecture/laboratory covering an overview of various training methods and facilities used in one-on-one training, group training, and sports team training. Topics include client motivation, lifestyle modification coaching, program periodization, plyometrics, rehabilitation concerns, and exercise facility design.

EXER2090 **Exercise for Special Populations** 2 cr.

Learn about the theory and practice of functional exercise training for various populations. Learn program design techniques for healthy, diseased, and disabled populations. Students will get practical hands-on activities including stability and medicine balls, balance training, and free weights. Topics include: client recommendations and rehabilitation concerns.

Applied Exercise Physiology

This course will present an overview of the most important concepts for coaches, fitness instructors, or practitioners in a healthscience 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 3 cr. and Movement Anatomy

An in-depth course covering the study of biomechanics and the anatomical foundations of human movement. Topics include: muscle contraction, muscle origins and insertions, muscular and skeletal actions, articulations, and human movement fundamentals. Prerequisites: BIOL2000 recommended.

EXER2130 Foundations of Sport Science

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

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.

Intro to Athletic Training

This course is designed to provide the entry-level exercise science practitioner with an overview of the knowledge's, competencies, and skills of athletic training. **Articulated**

Corporate Wellness/Health Promotion

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**

An introductory course to the fundamental elements of group fitness instruction. Areas of focus include: music selection, choreography, cuing, leadership skills, and motivational techniques. A variety of instruction formats will be taught including: step, cardio, kickboxing, aqua, and specialty classes. Strongly recommended for those pursuing careers in Corporate Wellness.

EXER2270 **Recreation Sports**

3 cr.

This course will focus on the development, marketing, and facilitation of sports for the recreational athlete. It will also include activities for the outdoor enthusiast. Possible areas of focus include: intramural sports, community education programs, camping and orienteering, and adult recreation leagues.

EXER2280 Health and Aging

3 cr.

The purpose of this course is to introduce students to the complex physiological and psychological processes associated with aging. Students will learn about specific health problems associated with an older population and ways to prevent some of the nonessential age-related declines in function.

EXER2290 Legal Aspects of Sport

The purpose of this course is to provide students with an adequate background to ensure their comfort when dealing with legal issues surrounding sport. Students will learn of the inherent risk associated with sport management and administration. They will be provided with a history of legal arguments, defenses, and judgments in the sport arena. Varies.

EXER2295 Social and Ethical Aspects of Sport

This course examines how sport is affected by society, and how society is affected by sport; ethical and moral issues in sport for athletes, coaches, administrators, staff personnel and media; and legal considerations in roles related to sport.

GM AUTOMOTIVE SERVICE EDUCATIONAL PROGRAM (ASEP)

Automotive Fundamentals

This course is designed to develop the basic concepts needed for the General Motors Automotive Service Educational Program. This unit covers basic automotive safety and procedures in the shop. Different types and uses of fasteners, including thread repair, will be covered. The proper procedures for writing repair orders and parts requisitions will be covered. The use of General Motors service bulletins, as well as service and repair manuals, will be examined in detail, including wiring schematics. Instruction and GM certification in the General Motors Specialized Electronics Training program (GM-SET) is also a part of this unit. **Articulated**

ASEP1102 Electrical and Fuel Systems

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

This course will cover General Motors engine control systems. Included will be a thorough examination of automotive microprocessors, sensor and actuator operation, DIS ignitions, TBI, PFI and other GM fuel systems. The proper use of service manual diagnostic information and trouble charts will be covered. The use of scan tools including TECH 1, TECH 2 and GM-PC for diagnosis will be covered in detail. This unit includes a continuation of scope and infrared operating and diagnosis. Prerequisites: ASEP1101 and ASEP1102; or instructor approval.

ASEP1104 Body Electronics

This course will cover General Motors body electrical systems. A study of the theory, diagnosis, and repair of electric windows, door locks, power seats, mirrors, electronic and conventional instrumentation, windshield wipers, cruise controls, theft deterrent systems and microprocessor-controlled body electronics is included. The automatic and electronic climate control systems will be addressed in this unit. The Supplemental Inflatable Restraint system (SIR) and its various applications and functions will also be examined. Prerequisites: ASEP1101, ASEP1102, ASEP1103; or instructor approval.

ASEP1105 Heating And Air Conditioning

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 reconditioning systems. Reclaiming and recycling of R-12 and R-134A and retrofitting will also be covered in this unit. Prerequisites: ASEP1101.

ASEP1108 Brake Systems

This course covers theory and practice of servicing brake systems on General Motor's cars. Included will be disc/drum brakes, power brakes, diagonal split, anti-lock brakes, and four-wheel disc brakes. Prerequisites: ASEP1101.

ASEP1201 Dealer Work Experience I 8 cr.

This is on-the-job training at a GM dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college's ASEP staff and ASEP coordinator at the dealership. Prerequisites: Enrollment in GM ASEP and successful completion of the previous semester.

ASEP1202 Dealer Work Experience II 8 c

This is on-the-job training at a GM dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college's ASEP staff and ASEP coordinator at the dealership. Prerequisites: Enrollment in GM ASEP and successful completion of the previous semester.

ASEP1204 Dealer Work Experience IV

8 cr.

This is on-the-job training at a GM dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college's ASEP staff and ASEP coordinator at the dealership. Prerequisites: Enrollment in GM ASEP and successful completion of the previous semester.

ASEP1205 Dealer Work Experience V

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This is on-the-job training at a GM dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college's ASEP staff and ASEP coordinator at the dealership. Prerequisites: Enrollment in GM ASEP and successful completion of the previous semester.

ASEP1212 Advanced Diagnostics/ New Model Update 1 cr.

This course provides the student with additional electronic fuel and body systems diagnosis and repair procedures. The most current factory diagnostic procedures will be stressed. Emphasis will be on GM-PC, TECH 1, and TECH 2, as well as additional lab scope and infrared analysis. Also, any new products or systems introduced on GM vehicles that have not been previously covered will be addressed. Prerequisites: ASEP1101, ASEP1102, ASEP1103,

ASEP2107 Steering and Suspension

2 cr.

This course covers the principles of operation, removal, reconditioning, installation and adjustments of GM steering and suspension systems. It includes comprehensive training on power/manual steering gears, power/manual rack and pinion systems, suspension repairs, wheel alignment, wheel balance and vibration diagnosis.

ASEP2110 Automatic Transmissions

3 cr.

This course covers the removal, disassembly, operation, reconditioning, assembly, installation and diagnosis of General Motors automatic transaxles and transmission.

ASEP2111 Engines

3 cr.

This course covers the operation, diagnosis, removal, 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 cr.

This course covers the disassembly, operation, reconditioning, assembly and adjustments of General Motors front and rear axles, driveaxles and driveshafts.

ASEP2303 Dealer Work Experience III

1 cr.

This is on-the-job training at a GM dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college's ASEP staff and ASEP coordinator at the dealership. Prerequisites: Enrollment in GM ASEP and successful completion of the previous semester.

HEALTH

HEAL1000 First Aid/CPR

1 cr.

This course covers the knowledge and skills that are needed for emergency care of the injured or ill until medical care can be obtained. It should also serve to create an active interest in the prevention of accidents and illnesses. This course covers the knowledge for prevention of unnecessary death from heart attack, the signals of a heart attack, and the actions for survival. Basic skills performed in the management of basic life support are in accordance with standards set by the American Red Cross. (Attendance is mandatory in this course. No excuses are accepted. No makeup is scheduled.)

HEAL1010 CPR For the Professional Rescuer

1 cr.

This course covers the knowledge and skills that are needed for emergency care of the injured or ill until medical care can be obtained. It is designed as a review for those who are professional rescuers, e.g., nurses, firefighters, police officers, lifeguards, etc., who need to renew their CPR certification every year. Basic skills performed in the management of basic life support are in accordance with standards set by the American Heart Association. (Attendance is mandatory in this course. No excuses are accepted. No makeup is scheduled.) Prerequisites: HEAL1000 or American Heart Level C. **Articulated**

HEAL1020 Advanced First Aid

1 cr.

This course covers the knowledge and skills necessary to provide emergency care of the injured or ill until advanced medical care arrives. This course provides in-depth knowledge as well as advanced first aid skills. First aid skills are in accordance with the guidelines of the National Safety Council. (Attendance is mandatory in this course. No excuses are accepted. No makeup is scheduled.) **Articulated**

HEAL1030 Emergency Care Technical Trades

3 cr.

This is an industry-related course that covers the knowledge and skills that are needed for emergency care of the injured or ill until medical help can be obtained and creates interest in the prevention of accidents and illness. This course covers the knowledge for prevention of death from heart attack or stroke and the signals and actions for survival. Covered also are the care and prevention of natural element conditions that may become life threatening situations. Basic skills performed in the management of basic life support are in accordance with standards set by the National Safety Council.

HEAL1035 Wilderness First Aid

1 cr.

This course covers the knowledge and skills necessary to care for those who are injured or suddenly ill in remote locations. The Wilderness Medical Society defines wilderness as a remote geographical location more than one hour from definitive medical care. The information taught in this course will provide you with the "what to look fors" and the "what to do's" necessary to successfully manage injuries and sudden illnesses that occur in delayed help situations. This course targets outdoor enthusiasts (hikers, skiers, hunters, climbers, etc.), individuals who work in remote areas, (farmers, foresters, linesmen, truckers, ranchers), people who live in areas where the EMS system may not be able to respond immediately to an emergency (small communities, ranches, and vacation homes), as well as for those who travel in countries where medical care may be inadequate or difficult to reach.

HEAL1040 Emergency Care on the Job

This is an industry related course that covers the knowledge and skills that are needed for emergency care of the injured or ill until medical help may be obtained and also to create interest in the prevention of accidents and illness. This course covers the knowledge for prevention of death from heart attack or stroke and the signals and actions for survival. Covered also are the care and prevention of natural element conditions that may become life threatening situations. Basic skills performed in the management of basic life support are done according to standards set by the National Safety Council.

HEAL1060 Nursing Assistant

5 cr.

2 cr.

This course introduces concepts of basic human needs and the function of the nursing assistant in long term care and or home health care. Basic nursing skills will be demonstrated and practiced in the laboratory setting. Upon successful completion of classroom studies, the student will 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. Individuals who provide direct contact services to clients of licensed facilities are required to have complete criminal background studies. Disqualified persons will not be permitted to work in these facilities.

HEAL1070 Trained Medication Aide

2 cr.

This state-approved program provides an overview of the requirements concerning medications and their administration. Other topics include legal criteria, medical abbreviations, measurements, use of the Physician's Desk Reference (PDR), and overview of body systems and drug classifications. Administration of medications via oral, eye, ear, rectal, and topical routes will also be covered. Attendance of all classes is mandatory; any absence will result in repeating the course. Students must attain 90% on all examinations to continue in the class. Prerequisites: Must have completed Nursing Assistant-Registered program.

HEAL1101 Anatomy and Physiology

4 cr.

This course is an introduction to the structure and function of the human body. Focus will be on the study of each individual organ system and the interaction of each system with the rest of the body. Prerequisites: OFFC1045, HEAL1502. **Articulated**

HEAL1150 Health Career Mathematics

1 cr.

This course will assist students in mastering the skills necessary to determine drug dosages. Applicable basic skills will be reviewed, followed by proportions and a study of the metric system and the apothecaries' system. A major portion of the time will be spent solving drug dosage word problems. Prerequisites: Qualifying scores on ACCUPLACER Arithmetic test.

HEAL1502 Medical Terminology

2 cr.

This course is an introduction to building medical terms and learning the meanings. Students will learn combining forms, word roots, prefixes and suffixes, and how these word parts apply to building medical terms. Students will also learn common medical abbreviations and symbols. THIS COURSE IS THE SAME AS OFFC1045.

HEAL1702 Pharmacology Basics

1 cr.

This course will provide a framework of knowledge of medications in relation to body systems and disease conditions. The classifications, purposes, adverse effects and precautions of drugs will be described.

HEAL1800 First Aid/CPR for the Allied Health Care Provider

1 cr.

This course covers the knowledge and skills that are needed for emergency care of the injured or ill until medical care can be obtained. It should also serve to create an active interest in the prevention of accidents and illnesses. This course is designed for those needing more advanced knowledge and skills than the layperson; medical assistants, personal trainers, lifeguard, police officers for emergency care of the injured or ill until advanced medical care can be obtained. Basic skills performed in the management of basic life support are in accordance with standards set by the American Red Cross. (Attendance is mandatory in this course. No excuses are accepted. no makeup is scheduled.)

HEAVY CONSTRUCTION EQUIPMENT MECHANIC

HCEM1101 General Shop Mechanics - Introduction

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. *Articulated**

HCEM1110 Welding and Flame Cutting

2 cr.

The application of several welding methods used in the Heavy Equipment Industry is covered in this course. Safety, theory, and practice will be taught in a lab setting. Cutting and heat bending are also included. Prerequisites: HCEM1101 or instructor's approval.
Articulated

HCEM1132 Heavy Duty Electrical

3

This is an introduction to electricity as applied to heavy equipment covering electronic theory and magnetism. Emphasis is on theory, diagnosis and repair of basic starting, charging, lighting and ignition systems. This course prepares students for HCEM1234 through classroom instruction and lab practice.

HCEM1140 Diesel Engine Overhaul I 4 cr.

This course teaches engine tear down, failure analysis, cylinder head repair, minor overhaul, and use of proper precision measuring instruments on engines used in the heavy equipment field such as Cat, John Deere, Perkins, Case, Ford, Cummins, and Onan. This course also includes basic fundamentals of gas and diesel engine design, including the study of cylinder heads and blocks, lubrication, air intake, exhaust, electrical, cooling, and fuel systems. Precision measuring is included, along with preventive maintenance and minor repair as well as testing on stationary and mobile gasoline engines used in the heavy equipment industry. Safety and troubleshooting are stressed. Prerequisites: HCEM1101.

HCEM1160 Specialized Lab I

3 cr

The student will work in a lab setting for the purpose of using this specialized lab to allow more time to complete goals. This may be remedial, foundation, or enhancement. This specialized lab is taken by both the diploma and the A.A.S. student. Prerequisites: HCEM1101, HCEM1110, HCEM1132, and HCEM1140.

HCEM1234 Heavy Duty Electronics

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 c

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 cr.

Instruction covers hydraulic and pneumatic brake theory and operation, component identification, application, and general repairs on heavy equipment. Safety and troubleshooting are stressed. Prerequisites: HCEM1101 or instructor's approval.

HCEM1256 Diesel Engine Tune-up 3 cr

This course includes component identification, testing procedures, problem analysis, valve and injection adjustment, pump replacement, and engine tune-up. Troubleshooting is stressed.

HCEM1260 Specialized Lab II 3 cr.

The student will work in a lab setting for the purpose of using this specialized lab to allow more time to complete goals. This may be remedial, foundation, or enhancement. Prerequisites: HCEM1246, HCEM1250, and HCEM1256.

HCEM1261 Specialized Lab II - AAS 2 cr

This course is only for students pursuing the AAS (Cat Track) degree. The student will work in a lab setting for the purpose of using this specialized lab to allow more time to complete goals. This may be remedial, foundation, or enhancement. Prerequisites: HCEM1246, HCEM1250, and HCEM1256.

HCEM2115 Transmissions

4 cr.

This is a technical course designed to promote understanding of standard sliding gear, synchromesh, and powershift transmissions used in heavy equipment industry. Theory related to hydraulicassisted transmissions and torque converters, along with basic fundamental principles of hydraulics, torque multiplication, gear ratios, disassembly, assembly, and adjustment procedures are covered. Prerequisites: HCEM1101 and HCEM1132 or instructor's approval.

HCEM2135 Hydraulics I

3 cr.

This introduction to basic hydraulics is a prerequisite to related courses. The student will study principles of hydraulics, identification of components, operation, fluids, and preventive maintenance. Students will use test instruments such as high-pressure gauges and flow meters to troubleshoot and diagnose hydraulic pump efficiency and condition of related system components. System components are disassembled and reassembled, with adjustments made to main and circuit reliefs in accordance with manufacturer's specifications. Prerequisites: HCEM1101 and HCEM1132 or instructor's approval.

ICEM2145 Hydrostatic Systems

3 cr.

Students study basic principles of operations, system components, testing procedures, repair techniques, adjustments, and preventive maintenance procedures. Prerequisites: HCEM1101 and HCEM2135 or instructor's approval.

HCEM2175 Specialized Lab III

3 cr.

Students gain additional shop experience for entry-level positions in industry. Students diagnose, record, and make repairs on customer equipment including crawlers, loaders, motor graders, backhoes, etc. Repairs are made on heavy equipment systems such as hydraulic, brake, electrical, chassis, and sheet metal. After repairs, students complete the work repair order. Prerequisites: First-year courses HCEM1101, HCEM1132, HCEM1250, HCEM2115, HCEM2135, and HCEM2145, or instructor's approval.

HCEM2176 Specialized Lab III - AAS

2 cr.

Students gain additional shop experience for entry-level positions in industry. Students diagnose, record, and make repairs on customer equipment including crawlers, loaders, motor graders, backhoes, etc. Repairs are made on heavy equipment systems such as hydraulic, brake, electrical, chassis, and sheet metal. After repairs, students complete the work repair order. Prerequisites: First year courses HCEM1101, HCEM1132, HCEM1250, HCEM2115, HCEM2135, and HCEM2145 or instructor's approval.

HCEM2225 Track Drive Systems

3 cr.

This course provides the student with an understanding of track drive component operation and wear. Students study principles of operation, demonstrate safe jacking and blocking procedures, and study track, track frame, sprocket, idler, and roller removal and installation. Wear analysis and preventive maintenance are stressed. Adjustments are made according to manufacturer's specifications. Prerequisites: HCEM1101 and HCEM2115, or instructor's approval.

HCEM2238 Hydraulics II

3 cr.

This course is designed for students with knowledge of hydraulic flow and pressure. Students learn National Standard Institute symbols used in fluid power diagrams. Students design complete hydraulic systems around available components and manufacture and assemble two types of high pressure hoses. A technical study provides students with operational knowledge of computer-controlled multiple hydraulic systems. Students troubleshoot and diagnose hydraulic system malfunctions. Prerequisites: HCEM1101, HCEM1132, and HCEM2135, or instructor's approval.

HCEM2255 Steering Systems

3 cr.

This course provides students with basic understanding of steering systems used on heavy equipment. The course begins with mechanical systems followed by intensive overview of hydraulic-assisted systems used on crawlers, articulated loaders, motor graders, and backhoes. Students study principles of operation, components, repair procedures, and adjustments. Prerequisites: HCEM1101, HCEM2135, and HCEM2145, or instructor's approval.

HCEM2265 **Differentials**

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.

HCEM2280 **Climate Control**

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, HCEM1132, HCEM2135.

HEAVY DUTY TRUCK TECHNOLOGY

HDTT1100 Truck Technology Fundamentals

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. **Articulated**

HDTT1103 Air Brake Systems

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.

Welding Procedures

This course covers basic position welding techniques of the different welding applications used in the heavy truck repair industry. This course will cover applications of oxyacetylene welding, brazing, cutting, heating, arc welding, and wire-feed (MIG). Fall. **Articulated**

HDTT1109 **Fluid Power Systems**

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.

Preventive Maintenance

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

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

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. **Articulated**

HDTT1222 Truck A/C

2 cr.

This course covers identification, inspection, basic refrigeration, preventive maintenance, servicing, electrical, and refrigerant charging of tractor cab A/C units common to heavy trucks.

HDTT2101 **Drive Train I**

6 cr.

This course covers repairing, rebuilding, and diagnosing problems in transmissions and differentials. Students are taught how to remove, inspect, and replace gears, shafts, bearings, seals, and other components using the proper tools and procedures.

Drive Train II

This course covers the theory of operation, repair, removal, inspection, and installation of the clutch and drive shafts.

HDTT2107 **Diesel Fundamentals**

3 cr.

This course covers the basic theory, operation, and understanding of 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.

Diesel Fuel Systems

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.

Diesel Engine Fundamentals

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

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.

HDTT2228 D.O.T. Certification (Elective)

This course covers the proper method of performing the federal and state D.O.T. truck inspection. Use of inspection forms and permit stickers will also be covered. After completion of this course and final exam, the student will be a certified truck inspector and able to perform both federal and Minnesota D.O.T. inspections.

HISTORY

HIST1100 History of the United States to 1877

4 cr.

This class is a survey of American history from early Native Americans to Reconstruction. It consists of a combination of primary and secondary sources that focus on the major political and social changes in America to 1877. Meets MnTC Goal 5.

HIST1200 History of the U. S. from 1877 to the Present 4 cr. This course will survey the major historical events of the United States from 1877 to the present. The text emphasizes political and social developments while the secondary readings provide a closer examination of this period's major themes. Meets MnTC Goal 5.

HIST1300 World History

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 lense of different cultures, nations, and civilizations, Big History starts 13 billion years ago and attempts to place the human species in the context of the universe. This course begins with the scientific account of the universe's beginnings and then describes the formation of the earth including its flora and fauna. The majority of the course concentrates on the major trends and developments of human societies from the Paleolithic, throughout the agrarian, and into the modern era. Prerequisites: College reading level recommended. Meets MnTC Goal 5.

HIST1400 American Environmental History 3 cr.

This course examines the interaction between humans and the natural world in the United States from the late nineteenth century to the present. In addition, heavy emphasis is placed on recent Minnesota Environmental history. The course considers such diverse topics as the impact of industrialization and urban growth on the environment, the emergence of ecology and green politics, and the creation of the idea of Nature in American culture. Students will be expected to develop an historical understanding of the maior themes of modern American environmental history: relationships between human activity and pollution in cities, emergence of reform movements and environmental regulation, relationships between increasing urban growth and increasing environmental concern, and the rise of environmental politics in both local and national settings. Prerequisites: The course is taught for students interested in American history as well as those seeking a better understanding of environmental issues. Students will need access to a computer and be familiar with word processing programs and browsing the Internet. Meets MnTC Goals 5 & 10.

HIST1450 History of Minnesota 3 of

This three-credit history course explores the history of Minnesota from the ice age and early Native Americans to the events of today. Through a combination of three textbooks, internet sites and field trip visits to historical sites students can gain an appreciation of the contributions made by those who came before us in the state we now call Minnesota. Meets MnTC Goal 5.

HIST1500 History of Western Civilization 3 cr.

This course examines the nature of the Western world and how it has shaped the men and women who are its heirs. Student will understand the role Western civilization has and is playing in the worldwide civilization of the present day. The course focuses on the outstanding institutions, ideas, and creative works that have formed (and expressed) Western civilization, as well as on Western interactions with other civilizations in the past and present. As Shakespeare observed, "What's past is prologue." Meets MnTC Goal 6.

HUMANITIES

HUMA1100 Introduction to Humanities

This course emphasizes eight disciplines as they have grown and influenced each other and the societies that produced them through the ages in western history. These disciplines are: literature, art, architecture, philosophy, music, science, religion, and technology. The course will include analysis of written texts, pictures, and ideas. Meets MnTC Goal 6.

INFORMATION SYSTEMS TECHNOLOGY

ISTC1000 Introduction to I nformation Systems Management

3 cr.

This course provides an overview of computer hardware, relational databases, local area networks and programming. Information Systems terminology and industry acronyms associated with data, voice and video are also covered.

STC1010 Microcomputer Maintenance

3 cr

This course is designed for the PC novice to learn how to maintain, upgrade, and repair personal computers. Participants will remove and replace motherboards, and various input/output devices. Hard drives maintenance procedures (formatting) and loading operating systems will be covered.

ISTC1030 Operating Systems I

4 cr.

3 cr.

This course covers operating system administration with the use of command line for microcomputers. Topics include booting and configuring the system, the use of internal commands and external commands, file management, networking, and writing of batch files.

ISTC1033 Operating Systems II

3 cr.

This course is designed to provide students with the knowledge and skills necessary to install, configure, manage and troubleshoot desktop clients in a network. Lectures, hands-on projects and exercises reinforce skills as they are learned. Specific topic coverage includes: Installing; Using the System Utilities; Managing File Systems and Storage; Users, Groups, Performance Tuning; Working with the Registry; Booting Process; Fault Tolerance; Troubleshooting Prerequisites: ISTC1030.

ISTC1040 Network Systems I

3 cr.

This course presents an introduction to OSI 7-layer Reference Model used in data communication and computer networks with emphasis on network infrastructure design, configuration, implementation and subnetting. This course is the first in a four-course sequence designed to prepare students to take the Cisco Certified Network Associate (CCNA) examination.

ISTC1050 Database Systems

3 cr.

This course focuses on the fundamentals of relational databases; their use, design and implementation. The course will include entity-relationship modeling, logical and physical design and normalization, as well as the definition of tables and indexes. The use of Structured Query Language (SQL) for data manipulation will be emphasized. The course will also cover concepts of client/server, distributed and object-oriented databases, security and data warehousing. Prerequisites: COML1400.

ISTC1060 Security I

3 cr.

This course is designed to investigate the analysis and implementation of network security policies, procedures and guidelines for establishing, monitoring and controlling methodologies for local and wide area networks. The course covers authentication methods, communication security, infrastructure security, cryptography, operational security and firewalls.

ISTC1100 Business Communications

3 cr.

This course focuses on the foundations of business communication in the Information Systems Industry. The topics will include developing your business writing skills, topics on the social and ethical implications of Information Systems.

ISTC1205 Web Client Programming

3 cr.

This course covers technologies used to create Internet client applications. Students will create numerous web applications using scripting tools/languages. The course includes the topics of cascading style sheets, tables, frames, forms and multimedia integration. Emphasis will be placed on the design, development, deployment and maintenance of the interactive web sites. Prerequisites: ISTC1300.

ISTC1210 **Web Server Programming**

3 cr.

This course covers server-side components used to create dynamic web sites. Several technologies such as middleware, scripts and servlets will be explored. Methods and tools for integrating data will be emphasized including those provided as open source. Prerequisites: ISTC1300.

ISTC1230 Systems Analysis and Design

ISTC2065 Security II: Firewalls

experience.

This course provides coverage of systems analysis and design theories and techniques. Both the traditional, structured approach and the object-oriented approach to systems development will be explored. Students will learn the theory of analysis, design and implementation following the guidelines of the Systems Development Life Cycle. Students will demonstrate system modeling with UML.

Prerequisites: ISTC1300 or equivalent programming experience.

ISTC1300 **Introduction to Programming** This course provides the beginner programmer with a guide to developing programs using structured programming logic. Analysis, design, coding, testing and debugging will be covered. Students will be exposed to various design techniques, such as

flowcharts, as prequels to writing code. Programming key points include structured programming, modularized programming, decision-making, looping, arrays, data file utilization, arrays and object-oriented classes. Students will be exposed to procedural and object-oriented programming. Students will be required to generate simple programs for this course.

ISTC1400 Wireless Systems

3 cr.

This course provides hands-on experience to wireless networking. The student will explore the latest wireless technologies following networking industry 802.11x standards. This course includes the planning, designing, installing and configuring wireless LANs from the principal Wireless LAN vendors, and explores the interrelationship of their hardware, software and applications. Prerequisites: ISTC1040 or equivalent networking experience.

ISTC2005 **Network Systems II**

3 cr.

3 cr.

This course is the second course in a four-course sequence designed to introduce students to local area network hardware router installation and configuration. The course is designed around OSI 7-layer Reference model and is the second course in the sequence to help students prepare to take the CCNA certification exam. Prerequisites: ISTC1040.

ISTC2010 **Network Systems III**

This course is an introduction to layer-2 switching, IPX, VLANs, Access Control Lists, and IGRP. This is the third course in a fourcourse sequence designed to prepare individual students for the CCNA certification exam. Prerequisites: ISTC2005.

ISTC2015 **Network Systems IV** 3 cr.

This course focuses on WANs and Broadband infrastructure design, configuration and implementation as it relates to the 7 layer OSI model used in data communications and computer networks. WAN technology and terminology, Cable modems, Port Address Translation, Network Address Translation, DHCP, xDSL, and PPP. This is the final course preparing the student to take the CCNA exam. Prerequisites: ISTC2010.

ISTC2035 **Operating Systems III**

In this course the student is expected to learn the procedures underlying server operating systems. The course will cover network design, installing Servers, configuring and optimizing Servers, managing users and groups, dis quotas, basic and dynamic disks, security, and print management. Prerequisites: ISTC1040, ISTC1033.

ISTC2040 **Database Management**

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 cr. This course is designed for the network administrator who needs to learn the basics of VPN security and network firewalls. Basic installation techniques are covered along with how to make an intelligent choice of firewall technology. Basic firewall troubleshooting is also presented. This course aligns with the CheckPoint CCSA Certification outline. Prerequisites: ISTC1060.

This course introduces the student to the theory, design and im-

plementation of common data structures and related algorithms.

Topics include linked lists, recursion, stacks, queues, search algo-

rithms, sorting algorithms, graphs and binary trees. Students will write numerous programs to demonstrate comprehension of the

course topics. Prerequisites: ISTC1300 or equivalent programming

Security III: Forensics ISTC2070

3 cr.

This course provides the student with methods for conducting a computer forensics investigation including procedures, tools, ethics, and analysis. This course maps to the objectives of the International Association of Computer Investigative Specialists (IACIS) certification. Prerequisites: ISTC2065.

ISTC2100 **Project Management**

This course will provide fundamentals of planning and managing projects for information system (IS) organization. This includes creating a capstone project which will involve schedules, using critical path, assigning resources, and tracking progress. Focus is on topics that are unique to management of projects in an IS department. Prerequisites: Students should take this course in their last semester of studies.

ISTC2120 **Financial Accounting** for Information Systems

3 cr.

This course focuses on the fundamentals of the accounting system, as well as examines financial reporting from the perspective of decision makers outside the company. The topics will integrate these inside/outside perspectives by studying the accounting activities that take place inside the company and evaluating their impact on users outside the company. Topic coverage is paced appropriately for non-accounting majors.

ISTC2140 **Digital Convergence**

This course will provide hands-on experience to voice over IP technology. The student will explore the difference between analog and digital signals, public switched telephone, circuit switched, and packet switched networking. Prerequisites: ISTC1040 or equivalent networking experience.

ISTC2310 Java I 3 cr.

This course covers the JAVA language and how to use it to create a variety of applications. The course will cover object-oriented topics such as classes, methods, constructors, inheritance and polymorphism as well as primitive data types and control structures. The course will include creating applications that utilize the JAVA Swing Classes. Object-oriented design using the unified Modeling Language will also be introduced. Although this is an introductory Java course, students are expected to have an existing knowledge of programming concepts. Prerequisites: ISTC1300.

ISTC2315 Java II

This course builds on JAVA 1 to cover some of JAVA's more advanced capacities. Topics covered include the embedding of simple applets in web pages, enterprise wide development of distributed n-tier client/server applications, Remote Method Invocation (RMI), JAVA Database Connectivity (JDBC), server side JAVA programming (Servlets/JSP), collections and data structures. Prerequisites: ISTC2310 or equivalent Java programming experience.

ISTC2320 .NET I 3 cr.

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 cr.

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.

INTERDISCIPLINARY STUDIES

INTS1000 College Success Strategies 2 cr

This course is designed to assist students to improve their cognitive and affective skills in order to achieve academic success. The topics included in the course are time management, note taking, test taking, using print and electronic resources, responsibility, motivation and attitude. This course meets the requirements for MnTC Goal 2.

INTS1010 Job Search Skills 1 cr

This course is designed to help students who are completing their education or seeking a job change to conduct a thorough and productive job search. In this class each individual will receive assistance with completing their resume and/or professional portfolio. The professional portfolio is the latest tool used to conduct an effective job search. The class will cover the "do's" and "don'ts" of marketing your skills and talents to both large and small companies. It will also provide valuable information on the best ways to conduct an effective interview thus taking away some of the anxiety associated with the interviewing process.

INTS1012 Career Planning 1 c

This course is designed for individuals seeking to clarify their career options. Class participants complete several commonly used career assessments. They include an interest inventory that defines an individual's interests as they relate to work and career choices. The Myers-Briggs Type Indicator provides information on how different career choices interface with different personality traits. Also included are assessments that evaluate an individual's skills and values as they relate to career choice. This class is taught in a computer lab, which makes it easy for individuals to learn about accessing some of the most up-to-date career information available through the Internet. In addition to lab work the class also includes a helpful amount of class lecture and discussion. This class is highly recommended for students anticipating high school graduation, for college students unsure of a career path and for the adult learner looking to change or advance their career. **Articulated**

INTS1040 Sharing Your Culture 1 cr.

This course is intended for international students required to present cultural and native country information as part of their tuition cultural scholarship. Topics will include: identification of audience, use of visual aids, organization of the individual's cultural and/or country topic, practice in presentation delivery. This class is reserved for International students accepted into a DCTC program of study, attending full-time under an F1 visa.

INTS1050 TRIO First Year Experience

2 cr.

This course is designed to teach students the skills to succeed in college. The topics include time management, note taking, test taking, college resources, motivation, organizational skills, learning styles, memory techniques, and stress reduction. Prerequisites: Students must be enrolled in TRIO program.

INTS1060 TRIO First Year Experience Critical Thinking 1 cr. This course is designed to build on INTS1050 and continue to work with students on the skills to succeed in college. The topics include critical thinking, effective discussions, organization, testing, and learning difficulties. Prerequisites: Students must be in the TRIO program.

INTS2955 Community Development through Service Learning

2 cr.

The Community Development through Service Learning course is designed to promote experiential learning to familiarize students with citizenship and community service. Students are required to demonstrate their knowledge of and approach to community service through participation in an approved community service project. Students will be asked to reflect upon their experience then analyze the experience based on relevant course concepts.

INTERIOR DESIGN

IDES1100 Design Fundamentals

4 cr.

This course covers the elements and principles of design: line, shape and form, space, texture, color and balance, proportion and scale, unity and harmony, and emphasis in two-dimensional and three-dimensional format. Color will be dealt with in detail to include color basics, theory, and psychology, and how color affects us and/or a space. We will approach the solution of design problems using the creative problem solving techniques. *Articulated**

IDES1110 Drafting for Interiors 4 cr.

This course covers the basic skills necessary to complete the drafting process of any given space. Students will learn proper use of drafting equipment, proper line quality, appropriate use of architectural symbols and lettering, dimensioning, electrical symbols and application, elevations, sections, detail, and isometric drawings. The skills learned will be used in the majority of all future design courses.

IDES1112 Introduction to SketchUp Modeling Software 3 cr.

This course will introduce the motivated student to 3 dimensional modeling software currently being used in professional design offices. Fundamental concepts, commands, and tools of the SketchUp will be taught in an enhanced on-line learning environment. There will be two on site formal lectures introducing basic concepts and ten on-line sessions. Students will submit required projects, questions and comments, to D2L server. Students will complete self-paced tutorials available at the following web address: http://www.sketchup.com Prerequisites: The student will have a working knowledge of Mac OS and/or Windows XP. It is recommended the student have a background in either drafting, art or computer graphics.

IDES1120 Critical Thinking and Programming 4 c

This course covers a straightforward and systemic approach to space planning interior spaces. Students will learn the preliminary phases of the interior design process - programming (gathering, analyzing, and compiling project information) and schematic design (developing and conveying the design concept). Anthropometrics, furniture clearances, circulation requirements, and ergonomics will be introduced. Students will use critical thinking skills and develop bubble and block diagrams as tools to lay out spaces in both residential and contract (commercial) spaces. Prerequisites: Concurrent enrollment in IDES1000 and IDES1110.

IDES1135 Visual and Verbal Presentation

3 cr.

This course covers the process of making visual and verbal presentations. These presentations will be focused on the appropriate industry needs. Students will incorporate the basic steps in making a verbal presentation, including the basics of the sales process, and study the various ways of making a visual presentation, including sketching techniques that can be implemented in a creation. One-point and two-point perspectives will also be included. Prerequisites: Concurrent enrollment in IDES1100 and IDES1110.

IDES1206 Residential Studio I

3 cr.

This course covers the basic skills necessary to design both public and private interior spaces in a home. The interior design process will be applied, with an emphasis on the design development phase (refining the design concept and focusing on design details). Students will investigate residential furnishing, lighting, and finish sources and will be introduced to specifying these products. Residential building systems (electrical, plumbing, and HVAC) will be introduced. Students will apply their programming design fundamentals, as well as verbal and visual communication skills, in progressively complex residential interior design projects. Visual tools will include manually-drafted floor plans, presentation elevations, and presentation boards. Prerequisites: IDES1100, IDES1110, IDES11120, and IDES1135.

IDES1217 Commercial Studio I

3 cr

This course covers the basic skills necessary to design interior spaces in commercial settings. The interior design process will be applied, with an emphasis on the design development phase (redefining the design concept and focusing on design details). Students will investigate contract furnishings, lighting and finish sources and will be introduced to specifying these products. Students will apply their programming, design fundamentals and verbal/visual communication skills in a variety of plans, presentation elevations, and presentation boards. Prerequisites: IDES1100, IDES1110. IDES1120. IDES1135.

IDES1225 Computer Aided Drafting

3 cr.

This course introduces the student to two-dimensional drafting skills using CAD (computer-aided design). The software used in this course is AutoCAD for Windows; the release will be determined by what is currently being used in the interior design profession. AutoCAD tools used to draw, edit, and display 2-D drawings will be studied and utilized, using hands-on training. Students will learn how to set up and plot drawings using a variety of paper sizes and architectural scales. Other AutoCAD features that will be covered include layering, wblocks, text, and dimensioning. These skills will be used in the Interior Design kitchen/bath and commercial courses. Students enrolling in this course are expected to have a working knowledge of Windows operating system. Prerequisites: IDES1110, COML1400 or instructor approval.

IDES1230 History of Art, Architecture and Interiors 4 cr. This course covers the history of art, architecture, and interiors, from ancient times through the 21st century with which an interior.

from ancient times through the 21st century, with which an interior designer must be familiar for use in industry applications.

IDES1235 Advanced Visual Presentation Techniques 2 cr.

This course covers computer based design visualization practices. These practices will be focused on the appropriate industry needs. Students will utilize computer based color application techniques to create fully rendered presentation drawings. Application of scanned materials and incorporation of environmental graphics will also be examined. Three dimensional computer modeling processes will be explored, utilizing a number of different software applications. Integration of computer generated models into photos of existing spaces, mapping of true textures to the models, simulated lighting effects and preliminary animation techniques will also be covered.

IDES2100 Interior Design Career Directions

1 cr.

This course prepares the student with the tools and information necessary to obtain an internship position upon the completion of the interior design coursework. Individual skills needed in different design positions will be researched and identified. Internship and career goals will be established. A portfolio of assignments and projects will be developed that best match the desired career directions of the student. Prerequisites: IDES1100, IDES1110, IDES1120, IDES1135, IDES1206, IDES1217, IDES1225, IDES1230. Concurrent registration or completion of IDES2106, IDES2110, IDES2136, and IDES2146.

IDES2106 Color and Light

3 cr.

The student will continue to study the hue, value and intensity of color. They will investigate the dynamics of color and light in interior space while developing the knowledge of what color is, why it happens, and how it is controlled. Prerequisites: IDES1100, IDES1110, IDES1120, IDES11206, IDES1217.

IDES2110 Materials, Estimating and Specifications 3 cr.

This course provides students with information that will allow them to establish a systematic approach for selecting materials in interiors. Students will also create the content of specifications documents for interiors, emphasizing code requirements and testing standards. Environmental issues and concerns in relation to the product materials will be addressed. Textiles and their use in residential and commercial interiors are presented. Students will learn the appropriate estimating techniques to determine accurate material amounts for any given job. The overall appropriateness and manufacturing process combined with the use of materials for walls, floors, and ceilings will be emphasized. Prerequisites: IDES1100, IDES1110, IDES1120, IDES1135, IDES1206, IDES1217.

IDES2136 Commercial Studio II

4 cr.

This course covers the interior design of public spaces. The interior design process will be applied, with emphasis on the design development phase (space plan and design details and presentation elevations) as well as contract documentation appropriate to this class (product specifications, installation plans, and schedules, working elevations and reflected ceiling plans). Commercial building support systems will be introduced. Strategic facilities planning will be explored. Prerequisites: IDES1100, IDES1110, IDES1120, IDES1123, IDES1206, IDES1217, IDES1225, IDES1230, and concurrent registration in IDES2110.

IDES2146 Residential Studio II (Kitchen and Bath) 4 cr.

This course covers the basics of residential construction and their application with kitchen and bathroom interior spaces. The course uses the guidelines published by National Kitchen and Bath Association (NKBA) and the principles of universal design. Spatial analysis and the selection and product specification of appropriate materials, cabinetry, and appliances will be introduced. The interior design process phase contract documentation appropriate to this class will be emphasized, which will include an installation plan and schedule, an electrical and lighting plan, and working elevations as well as sections and details for custom millwork. Prerequisites: IDES1100, IDES1110, IDES1120, IDES1135, IDES1206, IDES1217, IDES1225, and IDES1230; concurrent registration in IDES2110.

IDES2200 Professional Business Practices and Sales 3 cr.

This course will emphasize the business practices specific to the interior design industry, including organizational methods and procedures. Sales and marketing techniques, building a clientele, qualifying clients, determining fees, and proposals will be presented. Establishing a business, understanding a business plan, and identifying those issues pertinent to all successful designers are included. Prerequisites: IDES1100, IDES1110, IDES1120, IDES1125, IDES1206, IDES1217, IDES1225, IDES1230, IDES2106, IDES2100, IDES2136, and IDES2146.

IDES2210 **Senior Studio**

This course 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. Students' projects will utilize the total design process, which includes programming/strategic planning, schematic design, design development, and contract documentation. The outcome must qualify for portfolio inclusion and will be juried by professionals in the industry. Prerequisites: IDES1100, IDES1110, IDES1120, IDES1235, IDES1206, IDES1217, IDES1225, IDES1230, IDES2106, IDES2110, IDES2136, and IDES2146.

LANDSCAPE HORTICULTURE

Plant Science

This course covers the study of biology of higher plants, including morphology, physiology, and taxonomy. Emphasis is placed on knowledge relevant to landscape horticulture.

LAHT1010 Soil Science

3 cr.

This course covers the study of the fundamentals of soil and their use in horticulture. The course is an overview of the physical, chemical, and biological properties of soils, their classification and management, and soil fertility.

LAHT1100 **Woody Plant Materials I**

2 cr.

This course covers the identification and use of woody plants, including trees, shrubs, and evergreens, in Minnesota landscapes.

LAHT1110 Woody Plant Materials II

2 cr.

This course covers the identification and use of woody plants, including trees, shrubs, and evergreens, in Minnesota landscapes.

Plant Pests

This course is an overview of the biology, identification, and control of weeds, insects, and infectious and non-infectious diseases common to landscapes of Minnesota.

LAHT1300 **Landscape Construction I**

3 cr.

This course covers the study and practice of the skills necessary to install landscape plantings and materials. Sample subjects include planting, edging, mulching, retaining walls, decks, patios, and fences. This course emphasizes plantings. Building codes and permits are also discussed.

Plant Maintenance

2 cr.

This course covers the maintenance of landscape plants other than turf by proper cultural practices, including pruning, fertilizing, damage repair, and support.

LAHT1320 **Turf Management**

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**

his course presents basic concepts of growing plants under protective cover or in containers so as to better control the above and/or below ground environment. This course is applicable to anyone who grows plants in greenhouses, cold frames, interior landscapes, ornamental containers and elsewhere.

LAHT1502 **Safety and Equipment**

1 cr.

This course is an introduction to the safe use and basic maintenance of tools and equipment. Personal safety issues as well as legal issues are discussed.

LAHT1510 Landscape Mathematics

1 cr.

This course covers solving mathematical problems common to the landscape horticulture trade, including calculating areas, fertilizer rates, pesticide rates, and others. Prerequisites: Satisfactory score on CPT math entrance exam or passing grade in MATS 0200.

LAHT1600 Landscape Design I

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.

Herbaceous Plant Materials

This course is an introduction to annuals, perennials, groundcovers, ornamental grasses, and other herbaceous plants grown in Minnesota. Students identify and name assigned plants as well as supply information about the use and culture of each.

LAHT2010 Indoor Landscaping

3 cr.

This course is an overview of the materials and methods of indoor landscaping and indoor plant maintenance. Students will identify foliage plants and their cultural requirement. Practices include lighting, acclimatization, watering, fertilizing, and others.

LAHT2100 **Landscape Construction II**

3 cr.

This course covers the study of design, planning, estimating cost, and construction of such landscape features as decks, retaining walls, patios, and fences. Students will build hardscapes in class. Basic elements of surveying are included. Prerequisites: LAHT1300.

LAHT2110 Irrigation and Lighting

This course covers the fundamentals of landscape irrigation and lighting, especially for residential sites. Subjects include materials, design, and installation.

LAHT2120 Landscape Surveying

This course deals with the basics of land, topographical and construction surveying as it is used in landscaping. Students use hand and tripod instruments. Required for construction majors; suggested for all students.

LAHT2130 Site Grading and Drainage for Stormwater Management

1 cr.

This course is a follow-up to LAHT2120 Landscape Surveying and will cover concepts of grading and drainage as utilized by landscape design and construction professionals on a sitespecific 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 distruption to existing on and off site features. An understanding of site topography and hydrology coupled with the ability to thoughtfully manipulate landforms will allow designers and contractors to create landscapes that are functional and aesthetically pleasing while avoiding costly mistakes associated with improper site drainage. Prerequisites: LAHT1510 and LAHT2120.

LAHT2202 Landscape Design II

This course is an advanced study of design theory and presentation graphics. Includes plan, detail and elevation drawing techniques using various media. In depth discussion and application of design principles, design process and professional practice. Prerequisites: LAHT1600.

LAHT2210 **Design Problems**

This course reinforces design theory concepts through residential, commercial, and public space design problems. Presentation techniques and professional practice are further discussed.

LAHT2230 Landscape Computer Aided Design I

2 cr.

2 cr.

This course is an introduction to the use of computers in the design process. This is an elective class suggested for design majors. Prerequisites: Instructor permission.

LAHT2232 **Landscape Computer Aided Design II**

This course is a continuation of LAHT2230 and expands on the use of computers in the design process. This is an elective class

suggested for design majors enrolled in LAHT2210. Prerequisites: LAHT2230.

LAHT2300 Plant Propagation

2 C

This course is an overview of plant propagation and terminology. Students become familiar with industry techniques including seeding, cuttings, and grafting. This course is required for plant production majors.

LAHT2312 Nursery and Greenhouse Operations I 2 cr.

This course continues from LAHT1400 and 1410. Nursery topics include container production, nursery pests, and inventory. Greenhouse topics include introduction to bedding plant production and chemistry of growth media. Prerequisites: LAHT1400 and LAHT1410.

LAHT2320 Nursery and Greenhouse Operations II

This course is a continuation of LAHT 2310 with an emphasis on bedding plant production. Topics include fertilization, pest control, size control, and other cultural practices. Students will grow a bedding plant crop. Prerequisites: LAHT 2312.

LAHT2400 Pest Management

2 cr.

This course is an overview of pest control and integrated pest management. It reviews proper, safe, and legal application of pesticides, with emphasis on knowledge needed to pass state pesticide applicator's test. Prerequisites: None, but LAHT 1200 is suggested.

LAHT2410 Special Pruning Methods

1 cr.

This course covers theory and practice of such distinctive pruning practices as bonsai, espalier, and topiary. Prerequisites: None, but LAHT 1310 is suggested.

LAHT2500 Landscape Business Management

4 cr.

This course is an overview of the requirements needed for successful management in a landscape business. Subjects include personnel management, sales and marketing, government issues and basic concepts of consumerism, pricing and distribution.

LAHT2510 Landscape Estimating

3 c

This course is an overview of the competitive bidding process including job estimating, proposal writing, and project specifications. It includes practice in completing business records common to the landscape horticulture industry. Prerequisites: LAHT 1510 or permission of instructor.

LAHT2605 Introduction to Sustainable 2 cr. Landscape Practices

The ability of Earth's ecosystems to sustain life as we know it is coming under increasing pressure from the demands of our consumer oriented society. If future generations are to inherit a healthy planet then we will need to rethink the way we live our lives right down to the way we landscape our back yards, school grounds and city parks. This course will introduce students to the broader concepts and definitions of sustainability - meeting the needs of the present without compromising the ability of future generations to meet their own needs - and illustrate how those concepts can translate to the site specific scale and influence our approach to the design of our local landscapes. While acknowledging the underlying premise of reduce-reuse-recycle this course will introduce students to topics including concepts of Permaculture that can be applied to future landscape projects. This course will consist of classroom lectures and field trips to natural areas and built projects that demonstrate current examples of sustainable landscape practices. Prerequisites: None.

LAHT2610 Professional Certification

1 cr

Professional certification is a capstone experience that promotes professionalism and demonstrates understanding of the knowledge of landscape horticulture. Students take the Minnesota Nursery and Landscape Association Certified Professional examination. Prerequisites: Completion of three semesters of LAHT coursework with a GPA of 3.0 or better and completion of two internship courses.

LAHT2620 Water Gardening

1 cr.

This course covers all the components of water gardening including: different types of water gardens, how to design and install a water garden, different types of pumps needed, identification, use, potting and growing of water plants, selection and care of fish for a garden, chemicals needed, and maintenance, upkeep and over wintering of water gardens.

MARKETING & SALES

MKTC1000 Principles of Marketing

7 cr

Introduction to marketing terms, concepts, and skills useful in analyzing marketing problems. Covers legal, behavioral, ethical, competitive, economic, technological and international factors affecting product, pricing, promotion, and marketing channel decisions. Identify factors marketing managers take into account when creating a marketing plan, including buying behavior, market segmentation, product life cycle, packaging, branding, pricing, advertising, sales promotion, public relations, personal selling, and product distribution methods.

MKTC1100 Fundamentals of Sales

3 cr.

Introduction of the basic principles and applications of the sales process as they may apply to industrial, wholesale and retail selling situations. This would include prospecting and qualifying, planning and pre-approaching, approaching the customer, the sales presentation/demonstration, handling objections, closing the sale and post-sale service and follow-up with customer. **Articulated**

MKTC1150 Consumer and Professional Buying Behavior 3 cr.

Course examines the principles of the behavioral sciences of psychology, sociology and anthropology and how these sciences are used in creating marketing communications plans aimed at consumer or professional buyers. Specific topics include perception processes, lifestyle analysis, personality psychographics, motivation analysis and influence of groups on buying behaviors.

MKTC1200 Professional Sales

3 cr.

Course examines the knowledge and skills required of an effective salesperson. Students will examine methods of identifying prospects, securing appointments, pre-approach planning, gaining attention and interest, understanding prospects' wants and needs, obtaining agreement of concerns and solutions, showcasing product benefits, handling sales resistance, identifying and responding to buying signals, sale-closing techniques, post-call analysis and customer retention techniques.

MKTC2000 Advertising Practices and Procedures 3 cr.

This course studies advertising fundamentals. Students will explore the marketing communications plan, product and service positioning, consumer behavior theories, uses of various media, relationship advertising, and the process of developing creative strategies. Examination of advertising's relationship to other promotional elements of selling, sales promotion and publicity, and the functions and operation of an advertising agency.

MKTC2010 Advertising Campaign Management 3 cr.

This course emphasizes overall advertising campaign management. It focuses on strategy development, advertising, and promotional relationship, media strategy, budget management and control, and measuring results. Students study and analyze case histories and current campaigns covered in advertising trade publications. Students study advertising management's role in the marketing process, and sharpen their abilities to think strategically, analyze, conceptualize and make sound decisions. Students prepare and present a full advertising campaign. Prerequisites: MKTC2000.

MKTC2050 Direct Marketing

2 c

Learn the principles and components of direct marketing. Topics include marketing channels, the concepts of profiling, modeling and segmenting, database management, management in direct marketing, market analysis, privacy regulations, and internet, email and e-commerce marketing. Special concentration will be focused on Customer Relationship Management (CRM), a key competitive strategy, which focuses on the needs of customers.

MKTC2060 Proposal Writing

1 cr.

This course is an introduction to the proposal-writing process and its role in the marketing cycle. It covers the skills needed and information required to write a compelling proposal. It also covers the components of a good proposal and factors that can result in a rejected proposal.

MKTC2105 Marketing Communications Writing

3 cr.

Course examines how to write advertising copy for all areas of marketing communications such as the Internet, public relations, news media, scriptwriting, business writing as well as for print, radio, television and collateral media.

MKTC2220 Promotional Marketing

2 cr.

This course explains the importance of promotions in marketing. It defines the steps in promotion planning and the strategies used in both trade and consumer promotions. Techniques in promotional strategies, such as motivational and support programs, event sponsorship, premiums, contests and sweepstakes, tie-in programs, sampling, discounts, and couponing, will be discussed.

MKTC2310 Public Relations

3 c

This course explains the nature and use of public relations as a promotional tool. Training in the writing and preparation of press releases and press kits, publicity campaigns, conduct of press conferences, and other public relations tools. Course also includes current practices and problems in the field of public relations. Emphasizes successful case histories and planning techniques.

MKTC2410 Marketing Visual Communications

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.

MKTC2505 E-Marketing

3 cr

Course provides an overview of electronic commerce by examining and evaluating tactics of businesses utilizing the internet and other electronic media as part of their marketing mix. A review is made of Web technology trends and e-commerce strategies.

MKTC2550 International Marketing 3

This course introduces students to the concepts and disciplines of international marketing. Students develop an understanding of the international environment and its impact on marketing. Topics include social and cultural influences; political, legal and financial considerations; exporting and importing; organizational alternatives; information sources; market-entry strategies; pricing and distribution; sales and communications practices; counter trade; and other current international marketing issues.

MKTC2600 Marketing Research

3 cr.

This course examines the processes and techniques used in securing, 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.

MKTC2815 Business Law

3 cr.

Examine workplace issues impacting supervisory responsibilities and explore the influence of ethics on individuals and organizations. You will be introduced to the American legal system. Understand civil, contract, employment, and labor laws and how they affect business, such as harassment, discrimination, TORTS, documentation and terminations.

MKTC2900 Portfolio and Interviewing

1 cr.

Students will prepare their portfolios for interviewing and showing potential employers. Students will also learn how to set-up interviews, develop interviewing skills and create their resumes and cover letters for job searches.

MATHEMATICS

MATS0200 Basic Mathematics

Z cr

This course is designed to develop and increase the student's ability to perform basic math operations and to solve mathematical problems relevant to technical education. Topics covered include whole numbers, fractions, decimals, ratio and proportion, percents, and problem solving. Signed numbers and simple algebraic equations are introduced near the end of the course.

MATS0305 Introduction to Algebra

4 cr.

This course introduces students to concepts of basic algebra. Topics include operations with real numbers, variable expressions, geometric computations, solution of linear equations with applications, translating linear equations to and from graphs, manipulating polynomial expressions and factoring. Prerequisites: Completion of MATS 0200 or satisfactory score on Accuplacer.

MATS0400 Introduction to Geometry

1 cr.

This course is designed to introduce the student to basic geometry. Topics covered include lines, angles, angle pairs, circles, polygons, and solid figures. The student will work with formulas for circumferences, perimeters, areas, and volumes. Prerequisites: Successful completion of MATS 0200 or satisfactory score on math entrance examination.

MATS0500 Introduction to Trigonometry

1 cr.

This course introduces the student to trigonometry as a practical problem-solving tool. Students learn to use sine, cosine, and tangent functions, in addition to the Pythagorean Theorem, in order to solve right triangles. The law of sines and the law of cosines are also introduced. Prerequisites: Successful completion of MATS 0200 or satisfactory score on Accuplacer math.

MATS0600 Intermediate Algebra

4 cr.

Students with a basic algebra background are prepared for college-level mathematics courses such as college algebra, statistics, math for liberal arts, and concepts in math for elementary teachers. After reviewing linear equations and factoring methods, students move on to study rational expressions and equations, radical expressions and equations, rational exponents, quadratic equations and their solution in the complex number system, coordinate geometry including lines and circles, and functions and their graphs. Prerequisites: Successful completion of MATO305 or satisfactory score on math entrance exam. This course serves as a prerequisite for MATS1251, MATS1300, and MATS1350

MATS1205 Math for Electricians

3 cr.

A course for students enrolling in the Electrical Construction program. After a brief review of fractions, decimals, percents, and proportions, students will apply significant figures and engineering notation in applying Ohm's law, basic formulas of series and parallel circuits, the theorem of superposition, and Norton's and Thevenin's theorems. Students will further solve simultaneous equations and apply Kirchhoff's laws to series, parallel, and complex circuits. Trigonometry, vectors, and AC wave analysis are also introduced. NOTE TO ELECTRICAL CONSTRUCTION STUDENTS: This course does NOT fulfill the union requirement of a year of high school algebra. Students looking to fulfill this requirement should enroll in MATSO305. Prerequisites: Successful completion of MATSO305 or satisfactory score on math entrance exam.

MATS1251 Statistics

4 cr.

Fundamental principles of inferential statistics are presented in lecture and supplemented with computer labs using Minitab software. Specific topics include descriptive and graphical statistics, fundamentals of counting and probability, probability distributions, sampling distributions, confidence intervals, hypothesis testing, linear regression, chi-square tests, ANOVA, and nonparametrics. Prerequisites: Successful completion of MATSOGOO or satisfactory score on math entrance exam. Meets MnTC Goal 4.

MATS1300 College Algebra

4 c

This course develops a student's ability to analyze and work with functions and graphs, as part of the preparation for a rigorous calculus sequence (taking this course together with MATS1320 is equivalent to precalculus). Topics include tests for symmetry, finding intercepts and asymptotes, constructing piecewise-defined functions, transformations, polynomial and rational functions, composite and inverse functions, and exponential and logarithmic functions. Techniques for solving linear, quadratic, rational, radical, exponential and logarithmic equations (with applications) are emphasized throughout the course. Systems of linear equations and matrix algebra are introduced, after which sequences and series are also briefly introduced. Prerequisites: Must achieve qualify score on the Elementary Algebra or college level math test or successfully complete MATSO600. Meets MnTC Goal 4.

MATS1320 College Trigonometry

2 cr

A foundation in trigonometry which, taken with college algebra, prepares students for a rigorous calculus sequence. Topics include right-triangle trigonometry, the laws of sines and cosines, the unit circle, trigonometric graphs with transformations, trigonometric identities, inverse trigonometric functions, trigonometric equations, polar coordinates, complex numbers and vectors. Prerequisites: Co-requisite: MATS1300 or instructor approval. Meets MnTC Goal 4

MATS1350 Math for Liberal Arts

4 (

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. Prerequisites: Successful completion of MATSO600 or qualify scores on elementary algebra or college level math tests. Meets MnTC Goal 4.

MATS1480 Technical Calculus 2

This course is designed for students in an engineering technology program who wish to learn how to apply calculus to practical problems. After a brief review of analytic geometry, students are immediately introduced to differentiation and applications of the derivative (such as related rates and optimization problems), followed by integration and applications of integration (such as work problems, hydrostatics, and center of mass problems). Modeling with differential equations, and their solution by computer, is also explored. Prerequisites: Successful completion of MATS1300 or satisfactory score on math entrance exam.

MATS1500 Beginning Calculus w/Trig.

4 cr.

This course is designed for students who wish to explore the foundations of calculus in a more mathematically rigorous way than in MATS1480. The course begins with college trigonometry topics, including the six trigonometric functions and their inverses, the law of sines/law of cosines, radian measure and the unit circle, trigonometric identities and solving trigonometric equations. Fundamental concepts of calculus are then developed, including limits and continuity, differentiation of polynomial, trigonometric, exponential, and logarithmic functions with applications, and integration by numerical and exact methods with applications. Mathematical modeling with differential equations is also introduced. Prerequisites: Successful completion of MATS1300 or satisfactory score on math entrance exam. Meets MnTC Goal 4.

MEDICAL ASSISTANT

MDAS1123 Laboratory Skills I

5 cr.

This course starts with an introduction to the clinical lab setting, lab safety, glassware, health care math, weights, measurements, quality control and quality assurance. It continues with basic testing techniques in chemistry, immunology, microbiology and simple hematology. The students will also learn to maintain the instruments and records for instruments used in this testing and create patient reports for this testing. Prerequisites: Concurrently MDAS1140.

MDAS1130 Clinical Procedures I

3 cr.

This course covers medical assisting duties that are the fundamentals required for medical asepsis, physical examination, federal regulations, emergencies, patient assessment including vital signs, and documentation skills. Professionalism and the study of law and ethics are taught at the beginning of the course. Assisting with physical exam, minor surgery procedures and sterile technique are presented at end of course. Students are expected to take a First Aid and CPR course prior to externship. Prerequisites: 30% or above on Reading CPT or successful completion of ENGL0123.

MDAS1140 Phlebotomy

1 cr.

This course will cover the process of collection of patient blood specimens and processing them for testing. Four different methods of collection will be learned and practiced. Students will be expected to participate both as a phlebotomist and as a patient. Difficult draw, adverse reaction and pediatric situations will also be discussed and simulated. The specimens collected will be handled and processed according to laboratory standards for accurate testing. Prerequisites: Concurrently enrolled in Medical Terminology and Anatomy.

MDAS1210 Disease/Medical Treatment, Including Nutrition

This course presents basic information about common disease conditions affecting various body systems. The causes, symptoms, and current diagnostic and treatment procedures will be presented. Basic nutritional concepts and practical applications are also included. Prerequisites: MDAS1101.

MDAS1222 Laboratory Skills II

4 cr.

3 cr.

This course builds on Laboratory Skills I using all the skills learned in that course and adding complete urinalysis, advanced hematology, and ECG theory and performance. A large part of this course will focus on microscopic analysis of urine and blood. The end of the course will simulate the operation of a POL from specimen collection to result reporting of all testing learned in Laboratory Skills I and II. Following this course the student will be prepared to function in a clinic laboratory. Prerequisites: MDAS1122.

MDAS1230 Clinical Procedures II

3 cr.

This course covers the expanded practice of Medical Assisting duties that are the fundamentals required for assisting with medical specialty exams and procedures, specimen collection, rehabilitation and therapeutic modalities. Prerequisites: MDAS1130;

1 cr.

Students are expected to take a First Aid and CPR course prior to externship. Students also complete program requirements in Clinical Lab procedures, Anatomy & Physiology, Medical Terminology, Pharmacology, Nutrition and Radiology.

MDAS1250 Fundamentals of Radiographic Imaging 2 cr. This course is designed to: 1. Prepare students for the MN State Examination for x-ray operators. 2. Give students an overview of radiology technology and importance it plays in the medical field. 3. Provide students with the necessary information to understand the following: Medical terminology as related to the specialty of radiology, the design and proper use of x-ray equipment, the principles of radiation safety with protection to both the operator and the patient, and the importance of good, safe working habits. 4. Acquaint the students with the common radiographic procedures.

MDAS1260 Medical Assistant Certification Review 1 cr. This course is design to help the student prepare for the National Certification test in order to use the CMA credential. Prerequisites: Completion of the Medical Assistant program.

MDAS1270 Administrative Procedures 3 cr. This course is an overview of administrative duties that are performed by a medical assistant. Emphasis will be on clerical functions, bookkeeping procedures, insurance claims, professional communications, legal concepts, patient instruction, operational functions, written and electronic medical records. Other topics included in this course will be office and human resource manager

MDAS1701 Pharmacology and Math 4 cr. for Medical Assistants This course introduces the study of medications and their uses in the

responsibilities. Prerequisites: OFFC1130 and HEAL1502.

This course introduces the study of medications and their uses in the ambulatory care setting. Medical Assistant students will learn the techniques needed for administration of medications. Mathematics will be introduced with the goal of completing dosage calculations. Prerequisites: MDAS1130, taken concurrently with MDAS1230.

NANOTECHNOLOGY

NANO1001 Nano Technology Concepts 3 of

This course provides an introduction to the emerging field of nanoscience and will begin with the basics of scale and focus on the micro and nanometer range. Nanotechnology is a result of the capability to observe and manipulate systems at the molecular or atomic scale. This course will discuss the implications of this technology as it applies to the traditional sciences as well as various commercial markets such as materials, electronics and biotechnology. The course will also address the challenges facing businesses who desire to integrate nanotechnology into existing products and for entrepreneurs who desire to benefit from this technology. Societal impacts will be discussed and evaluated.

NANO1100 Fundamentals of Nanotechnology I 3 cr.

The course provides an introduction into nanoscience and includes the history of nanotechnology and also an introduction into the tools used to study the world at the nanoscale. This course also covers a sense of scale, exponential notation, surface area to volume ratio, molecular and atomic structure and the various forces that are predominant at various scale levels (macro, micro and nano). Understanding of these concepts is fundamental to learning how nanoscale interactions and phenomena differ from those in our common macroscale world. Societal impacts along with a technology maturity model are also considered as they apply to nanoscience. Finally this first course provides specific study of the application of nanotechnology to biological areas such as the study of proteins, drug interactions, cell operation and ion channels. Sensing systems and newly developed diagnostic tools that are a result of understanding the biological system at the nanoscale are also discussed. Students taking this course should either have successfully completed a college biology course, physics course (first semester) and algebra or be taking these courses concurrently with the 1100 course. Prerequisites: Take concurrently with BIOL1500 and MATS1500.

NANO1200 Fundamentals of Nanotechnology II 3 cr.

The second semester course focuses on the material science, chemistry and physics aspects of the nanoscale. The course begins with the discussion of elemental material attributes and how environment can impact properties and performance of the starting material. Crystal structure and material properties are then discussed with an emphasis on differences in interactions and measurements at various scale realms. Using the current 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 todayís electronic devices. Finally, the concepts of fluid mechanics, optics, photonics and lasers are discussed with an emphasis on new devices and applications based on nanoscale properties. Students taking this course should either have taken chemistry and the second semester of physics or be enrolled in these courses concurrent with the 1200 course. Prerequisites: NANO1100 and take concurrently with PHYS1020, CHEM1500 and MATS1250.

NANO1210 Computer Simulation

This course will cover the application of computer simulation (modeling) to nanoscale systems. In addition, this course provides a visualization of concepts and interactions covered in NANO1100 and NANO1200. The course will cover applied statistics, design of experiments and impact of input parameter variations for biological and mechanical systems. Prerequisites: NANO1100, COML1400.

NANO2101 Nanoelectronics

This course will increase the depth of topics and discussion of those covered in NANO1200. Quantum physics will be reintroduced at a greater depth with coverage of band structure, conduction, diffusion, thin film response and optical properties from a modern physics perspective. Students will study, measure, evaluate and create fabricated structures such as nanowires, cantilevers and nano channels. Application of nanoscale principles will be used to discuss imprint lithography, etching, component block assembly of nanotransistors, quantum computing, magnetic and electron spin memory and holographic memory devices. Prerequisites: A grade of C or better in the following courses; NANO1100, NANO1200, and NANO1210. Concurrent registration in NANO2111, NANO2121, NANO21312, NANO2151 and NANO2970.

NANO2111 Nanobiotechnology/Agriculture 3 of

This course will increase the depth of topics and discussion of those covered in NANO1100. Students will investigate the potential of nanoscience in multiple biological applications including nanopore, nanoparticle and nanochannel structures, diagnostics and treatment. Emphasis will be placed on interactions between biological and non-biological systems and understanding biochemistry. Prerequisites: A grade of C or better in the following courses; NANO1100, NANO1200, and NANO1210. Concurrent registration in NANO2101, NANO2121, NANO2131, NANO2151 and NANO2970.

ANO2121 Nanomaterials 3 cr.

This course will increase the depth of covered topics and discussion of those covered in NANO1100 and NANO1200 courses. Subjects covered include single walled and multiwalled carbon nanotubes (fabrication, property measurement and compound formulation), creation of nanomaterials, particles and crystals by various processes including 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. Prerequisites: A grade of C or better in the following courses; NANO1100, NANO1200 and NANO1210. Concurrent registration in NANO2101, NANO2111, NANO2131, NANO2151 and NANO2970.

Manufacturing Quality Assurance

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 cr.

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.

Career Planning and Industry Tours NANO2151

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.

OFFICE CAREERS

OFFC1000 Basic Keyboarding

1 cr.

This course is an introduction to basic keyboarding with emphasis on developing touch typing skills. Prerequisites: Basic computer skills.

OFFC1005 **Keyboarding/Formatting**

This course covers basic formatting for business documents, including letters, memos, reports, and tables. Straight-copy skill development for speed and accuracy will also be included. Prerequisites: A typing speed of 35 words per minute with five or fewer errors. **Articulated**

OFFC1007 **Keyboarding for Advancement**

The Skill Building Lab course is designed to allow students to upgrade keyboarding skills they already possess by working on additional warm-up, skill building exercises and timings until they reach their desired keyboarding speed. This course does not include any of the formatting in the lessons. Students can enroll in this course, work in the Flextime Lab or on their home computer using the keyboarding CD-ROM. Prerequisites: OFFC1000 or OFFC1005.

Business English Skills

This course is an extensive, comprehensive study of English gram-

mar, spelling, word usage, punctuation, number usage, capitalization and abbreviation rules, and proofreading.

OFFC1017 **Technology for the Business Professional**

This course is designed to advance the training of business and office students in the use of desktop publishing documents, real-world business projects, web site analysis, and web browser. Students will also learn the basics of creating, formatting and managing a Web site along with scheduling/organizational software. Prerequisites: COML1400 and OFFC1005.

OFFC1019 **Receptionist Skills**

This course incorporates the skills that are needed to be an effective receptionist. Topics such as: scheduling techniques using various software, typing skills, interpersonal communications, customer service.

OFFC1020 Office Procedures

4 cr.

This course helps the student develop those skills needed to work in the twenty-first century office. Topics include using computer hardware and software, setting up meetings and conferences, making travel arrangements, understanding telecommuting and virtual office structures, and developing career advancement techniques along with leadership and team building skills.

OFFC1023 Leadership for Administrative Professionals 1 cr.

Today's workplace is changing and so is the role of the administrative professional. No longer subordinate to management, "admins" of the 21st century are business partners in meeting corporate goals and objectives. Learn what it takes to become an accomplished administrative professional and a recognized leader in your workplace.

Meeting Planning for OFFC1024 2 cr. the Administrative Profession

Administrative professionals plan the majority of meetings under 100 people without formal meeting planning education or experience. This course provides fundamental knowledge and techniques to ensure success of planning small meetings.

OFFC1030 **Word Processing**

3 cr.

This course covers hands-on training for intermediate and advanced concepts of word processing using Microsoft Word 2003. Prerequisites: OFFC1000 or OFFC1005 or concurrent enrollment. **Articulated*

OFFC1040 **Integrated Office Skills**

This course is designed to integrate and reinforce the skills and knowledge learned in previous courses in the program. Project emphasis will develop the students' awareness of work flow, chain of command, and interpersonal relationships in the office. The use of electronic tools and the integration of documents created in various Microsoft Office Suite programs is the primary focus of this course. Prerequisites: OFFC1020 and COML1400.

Medical Terminology

This course is an introduction to building medical terms and learning the meanings. Students will learn combining forms, word roots, prefixes and suffixes, and how these word parts apply to building medical terms. Students will also learn common medical abbreviations and symbols. THIS COURSE IS THE SAME AS HEAL1502 **Articulated**

OFFC1052 **Medical Transcription I**

This course covers how to properly transcribe dictated medical material into a variety of usable medical documents by using word processing skills. Emphasis will be on authentic forms, using S.O.A.P. format, understanding medical language narrative, building speed and accuracy, proofreading and editing of material. An introduction to various laboratory tests and diagnostic procedures will also be covered in the course. Prerequisites: OFFC1005, OFFC1045, COML1400.

OFFC1053 Medical Transcription II

2 c

This advanced course covers producing a variety of medical documents by using medical terminology knowledge, word processing and transcription skills. Emphasis is placed on producing authentic forms, building speed and accuracy, proofreading and editing skills, and understanding and building on additional medical terms used in specialty areas. Prerequisites: OFFC1005, OFFC1045, COML1400, OFFC1052.

OFFC1054 Speech Recognition Transcription

2 cr.

This course is a continuation of medical transcription using speech recognition software. Emphasis will be on editing medical documents that are generated by speech recognition software. Students will experience working with documents that are typically generated at a clinic or hospital site, such as: history and physical exams, consultation reports, surgery reports, pathology reports, laboratory reports and discharge reports. Reports will address the various specialty areas. Prerequisites: OFFC1005, OFFC1045, COML1400, OFFC1052, OFFC1053.

OFFC1057 Medical Office Procedures

4 cr

This course is an overview of duties that are performed by a medical administrative assistant. Emphasis will be on using computer hardware and software. Topics include medical correspondence and documents, setting up meetings and conferences, making travel arrangements, telecommuting and virtual office structures. Students will also develop career advancement techniques, leadership and team building skills.

OFFC1130 MS Word I

2 cr.

This online-enhanced course covers the basics of using Microsoft Word software to create documents using a Personal Computer (PC). Topics include creating, editing and printing documents, using proofing tools, applying character formatting, using tabs stops, formatting paragraphs, creating envelopes and labels, working with columns, pictures, diagrams and charts, creating basic tables, using templates and wizards, comparing and merging documents and integrating Word with other Office applications. Prerequisites: Basic computer skills, including working in the Windows environment and file management (saving, retrieving or copying data files). A typing speed of 25 wpm is recommended, but not required. **Articulated**

OFFC1135 MS Excel I

2 cr.

This online-enhanced course covers the basics of using Microsoft Excel spreadsheet software to analyze financial data using a Personal Computer (PC). Topics include spreadsheet creation, maintenance and formatting, creating basic formulas, creating charts, and printing worksheets in various formats. Prerequisites: Basic computer skills, including working in the Windows environment, and file management (saving, retrieving or copying data files).

OFFC1140 MS Access I

2 cr.

This online-enhanced course covers the basics of using Microsoft Access software to create and maintain databases using a Personal Computer (PC). Topics include planning and creating a new database, creating and maintaining tables, establishing relationships between tables, creating and modifying basic queries, forms and reports, and importing and exporting data. Prerequisites: Basic computer skills, including working in the Windows environment, and file management (saving, retrieving or copying data files).

OFFC1145 MS PowerPoint

2 cr

This online-enhanced course covers the basics and advanced methods of using Microsoft PowerPoint software to create and maintain presentations using a Personal Computer (PC). Topics include creating and editing slides, adding Clip Art, pictures and Word Art, using drawing tools, adding tables, charts and diagrams, rearranging slide order, adding animations and sound effects to slides, running a presentation, printing presentation documents and integrating Word and Excel with PowerPoint. Prerequisites: OFFC1000. **Articulated**

OFFC1150 MS Word II

2 cr.

This online-enhanced course covers advanced methods of using Microsoft Word software to create documents using a Personal Computer (PC). Topics include customizing tables, working with multipage documents, creating custom styles, controlling pagination, using the mail merge wizard and other merge features, sorting text and tables, creating and modifying document references, working with drawing objects and graphics, working with large documents, using online forms and advanced features of using macros and integrating Word with the Internet. Prerequisites: Basic computer skills, including working in the Windows environment, and file management (saving, retrieving or copying data files) and completion of OFFC1130, MS Word I or equivalent experience. A typing speed of 25 wpm is recommended, but not required.

OFFC1155 MS Excel II

2 cr.

This online-enhanced course covers advanced methods of using Microsoft Excel spreadsheet software to analyze financial data using a Personal Computer (PC). Topics include linking worksheets and workbooks, sorting and filtering, creating and using macros, using problem-solving, analysis and auditing tools, creating pivot tables and pivot charts, created advanced charts, importing and exporting data, sharing workbooks and integrating Excel with the Internet or an Intranet. Prerequisites: Basic computer skills, including working in the Windows environment and file management (saving, retrieving or copying data files) and completion of OFFC1135, MS Excel I or equivalent experience.

OFFC1190 Calculators

1 cr.

This course covers development of the touch system on the numeric keyboard calculators and microcomputer keyboards. Students will develop speed and accuracy using the touch system for the four basic arithmetic operations and solving business problems.

OFFC1200 MS Access II

2 cr.

This course covers continued development of Access databases and tables. It is an advanced-level course where learners will design multiple queries, use Wizards, and automate applications using macros. Prerequisites: OFFC1140 or equivalent.

OFFC1204 Data Entry

2 cr.

This course introduces the basic principles and techniques of data entry using personal computers. The student will develop a basic skill level of performance measured by speed and accuracy. Prerequisites: Basic computer skills, OFFC1000 and OFFC1190 or equivalent.

OFFC1225 Help Desk Support

2 cr.

This course will aim to prepare students to hold an entry-level position in the help desk industry or a company. Companies now want to attract individuals who have balance of business, technical, and people skills to help make the help desk successful.

OFFC1230 MS Publisher

2 cr.

This course covers the basics of Microsoft Publisher for Windows software using IBM networked computers. The student will learn to create, edit, save, delete, and print professional looking applications including business cards, flyers, brochures, and newsletters. The spell checker, auto features and Wizards will be introduced. Prerequisites: OFFC1130 or equivalent.

OFFC1255 MS Project

2 cr.

This course covers the use of MS Project software. The student will learn how to plan and create a project, create tasks, schedule assign resources, update status and use Project tools for communicating and sharing information across applications and the Web. The goals of this course track to the standards for the Microsoft Office User Specialist exam for Microsoft Project. Prerequisites: Basic computer skills (using windows and managing files) REQUIRED; COML1400 recommended. Keyboarding/typing: Typing speed of 25wpm recommended.

OFFC1260 **Certification Basics - Word**

This course covers training in the preparation for students to take the Microsoft Office Specialist Exam for Word. Prerequisites: OFFC1030 Word Processing or equivalent.

OFFC1265 **Certification Basics - Excel**

3 cr.

This course covers training in the preparation for students to take the Microsoft Office Specialist Exam for Excel. Prerequisites: OFFC1135, MS Excel I or equivalent.

OFFC1270 **Certification Basics - Access**

This course covers training in the preparation for students to take the Microsoft office Specialist Exam for Access. Prerequisites: OFFC1200 MS Access II or equivalent.

OFFC1275 **Certification Basics - PowerPoint**

This course covers training in the preparation for students to take the Microsoft Office Specialist Exam for PowerPoint Prerequisites: OFFC1145, MS PowerPoint or equivalent.

Certification Basics - Outlook OFFC1280

This course covers training in the preparation for students to take the Microsoft Office Specialist Exam for Outlook. Prerequisites: OFFC1017, Technology for the Business Professional or equivalent.

OFFC1285 **Oral Business Communications** and Job Seeking Skill

2 cr.

2 cr.

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. **Articulated**

This course covers the process of communication, including

writing techniques and strategies. Students learn by completing

and informal reports. Communication skills are emphasized along

OFFC1290 **Written Business Communication**

PHYS1100 College Physics I

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.

with e-mail usage. Prerequisites: OFFC1010, Business English Skills

PHYS1200 College Physics II 4 cr.

This course is the second of two courses that cover non-calculus physics topics. These topics include: fluids, thermal physics, direct and alternating currents, magnetism, light and optics, waves, and topics in modern physics. Meets MnTC Goal 3.

Introduction to Political Science

Introduction to Political Science will present a broad introduction

to the basic concepts, approaches, and areas of study of political science. Discussion and active debate of key political ideologies; liberalism, conservatism, socialism, communism, fascism, nationalism, feminism, and environmentalism will be central to the course.

The class will also delve into the specific political systems and institutions of key members of the international community as well as consider contemporary American political issues. Meets

a range of writing exercises and critical thinking cases. Specific applications focus on letter and memorandum writing and formal

OFFC1340 **QuickBooks PRO Basics**

This online course introduces the basics of using Intuit's Quick-Books 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. Prerequisites: Basic computer skills.

PHILOSOPHY

or concurrent enrollment.

This course is an introduction to the study of ethics. Students will be involved in discussions about the nature of values and exploring solutions to contemporary and historical moral problems across various cultures. Prerequisites: Suggested Accuplacer reading cut score over 78. Meets MnTC Goal 9.

Critical Thinking PHIL1200

This course is an introduction to logic. Students will develop skills in critical thinking and will practice applying these skills to problems found in the workplace and other everyday environments. Topics will include the nature of argumentation, fallacies, categorical and propositional logic, deductive and inductive reasoning, and argument evaluation and construction. Prerequisites: Suggested Accuplacer reading cutscore over 78. Meets MnTC Goal 2.

PRACTICAL NURSING

MnTC Goal 5.

POLITICAL SCIENCE

Foundations of Nursing Practice I PNSG1000

This course introduces the LPN role in the nursing process and beginning nursing skills to meet the basic human needs of clients. Supervised laboratory learning is included. Prerequisites: The student must meet admission requirements for nursing core courses, including Accuplacer scores. Concurrent enrollment or prior successful completion of HEAL1101 or BIOL2000 is required.

PHIL1300 Introduction to Philosophy

This course is an introduction to the traditional problems of philosophy. Students will discuss and criticize texts written by philosophers from a variety of periods and cultures. Emphasis will be placed on the practical value of the ideas explored. Prerequisites: Suggested Accuplacer reading cut score over 78. Meets MnTC Goals 6 & 9.

PHIL1350 **Medical Ethics**

This course introduces students to basic issues in medical ethics. Emphasis will be placed on the process of considering ethical theory, ethical principles, laws, and professional codes of conduct in the analysis of specific cases from the field. This course will be of special interest to students in nursing and dental programs though students in any program will find the study of medical ethics worthwhile. Prerequisites: Suggested Accuplacer reading cut score over 78. Meets Goals 6 & 9.

PHIL1400 **World Religions**

3 cr.

This class is about learning the central beliefs of the world's major religions. Through writing, reflection, and presentation, students will explore the basic tenets of the world's major religions, who founded the religions, their main writings or scriptures, and their philosophical underpinnings concerning such issues as definition of religion, the existence of God/gods, faith, reason, ceremonial practices, and their relationships with the world. Meets MnTC Goals 6 & 8.

PHYSICS

PNSG1050 Clinical Refresher I

1 c

This course prepares the returning student to begin clinical courses in the nursing major. The student will have the opportunity to practice nursing skills, and will be required to demonstrate competence in theory and skills. Prerequisites: PNSG1000.

PNSG1100 Foundations of Nursing Practice II

2 cr

Students are expected to demonstrate progression in nursing knowledge and skill development. Procedures are practiced in the laboratory setting. Documentation procedures will be discussed and practiced. Prerequisites: HEAL1101, HEAL1150, PNSG1000, PSYC1100, PSYC1300, PSYC1400, and HEAL1400.

PNSG1250 Nutrition and Diet Therapy

2 6

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 diseas conditions.

PNSG1350 Pharmacology

2 cr.

This course introduces the study of medications and their uses. Students will learn the techniques needed for administration of medications. Students will master the mathematical skills necessary to accurately calculate drug dosages including the metric and apothecary systems. Prerequisites: CPT Arithmetic Skills score of 56% or MATSO200, PNSG1000, and HEAL1150.

PNSG1400 Adult Health Nursing I

4 0

This course addresses diseases of the endocrine, respiratory, cardiovascular, and musculoskeletal systems. It includes pathology, medical treatment, nursing implications, nutritional aspects, and pharmacodynamics. The management of surgical clients, clients with pain, and care of the terminally ill is also discussed. Prerequisites: PNSG1000, HEAL1400 and concurrent enrollment or prior successful completion of PNSG1100, and PNSG1350; CPT: Reading Comprehension score 50% or successful completion of ENGL0123.

PNSG1500 Adult Health Nursing II

3 cr

This course includes the study of conditions that affect the renal, neurological, reproductive, integumentary, sensory, and digestive systems. This includes the pathophysiology, symptoms, treatment, and nursing management for a select group of acute and chronic conditions. The nutritional aspects and pharmacodynamics are discussed. Course content will integrate critical thinking, math, and attitudinal aspects of nursing care. Prerequisites: PNSG1100, PNSG1400, concurrent enrollment or prior successful completion of PNSG1350, PNSG1530, and PNSG1540

PNSG1530 Beginning Clinical

3 c

This course introduces students to beginning nursing practice. Students will provide basic nursing care for selected clients in clinical settings with instructor supervision. Students will collect data, perform basic nursing skills, and administer delegated medical treatments. Prerequisites: HEAL1101, PNSG1000, PNSG1100, PNSG1400, PSYC1100, HEAL1400, PSYC1300, and PSY1400, concurrent enrollment or prior successful completion of PNSG1350.

PNSG1540 Clinical I

2 cr.

This course will offer the student the opportunity to perform nursing care for selected clients in an acute or subacute setting with instructor supervision. Students will administer medications and perform delegated medical treatments. Students will be expected to demonstrate progression in the performance of nursing skills. Critical thinking skills will be emphasized. Prerequisites: PNSG1530.

PNSG1560 Clinical Practice II 3 of

This course provides opportunities for students to perform nursing skills for selected acutely ill clients in clinical settings with minimal instructor guidance. Students will continue to implement the LPN role in the nursing process, and perform nursing care and treatments as learned in prior theory and laboratory courses. Independent functioning is encouraged along with medication administration proficiency. Prerequisites: HEAL1400, PNSG1100, PNSG1400, PNSG1500, PNSG1350, PNSG1800.

PNSG1570 Clinical Practice III

2 cr.

This course provides opportunities for students to perform nursing skills to select postpartum women and newborn infants in clinical settings with instructor guidance. Students may also assist in caring for children. Students will continue to implement the PN role in the nursing process and perform nursing care and treatments as learned in prior theory and laboratory courses. Prerequisites: PNSG1540.

PNSG1580 Clinical IV

3 cr.

This course provides students with the opportunity to function more independently in the clinical setting. Emphasis is placed on critical thinking and role transition from student to graduate nurse. Students are assigned to work as members of the health care team in the clinical setting. An instructor will be available to provide minimal guidance and support. Students will maintain contact with the instructor to discuss clinical practice issues. This course is the capstone clinical course in the Practical Nursing Program. Prerequisites: Prerequisites: Concurrent or successful completion of PNSG1800 and successful completion of all other nursing courses and clinicals.

PNSG1650 Clinical Refresher II

1 cr.

This course prepares the advanced-standing returning student to continue with clinical courses in the nursing major. Students will have the opportunity to practice nursing skills and will be required to demonstrate competence. Prerequisites: PNSG1100, PNSG1400, PNSG1530, or PNSG1540.

PNSG1750 Mental Health Nursing

2 cr.

This course explores mental health and mental illness. Maladaptive disorders, treatment, and nursing care are discussed. Transcultural and life span nursing issues of mental health will be addressed. Prerequisites: PSYC1350, Life-Span Development.

PNSG1805 Maternal and Child Health

2 cr.

This course prepares the student to care for maternity and pediatric patients. The obstetric portion of the course focuses on nursing care during pregnancy, labor/delivery, and postpartum, as well as care of the normal newborn. In the pediatric portion, the effects of illness and hospitalization on children are studied. Prerequisites: HEAL1400, PNSG1100, PSYC1200, PSYC1300, and PSYC1400, and concurrent enrollment or prior successful completion of PNSG1560. PNSG1570, and PNSG1580.

PSYCHOLOGY

PSYC1100 General Psychology

3 cr.

This general psychology course is an introduction and overview of the scientific study of behavior and experience. It includes topics like perception, learning, human development, intelligence, motivation, psychological disorders, social perception and group behavior. Meets MnTC Goal 5.

PSYC1200 Abnormal Psychology

3 cr.

This psychology course is an introduction and overview of psychopathology. This course discusses diagnosis, treatment and prognosis of patients with mental health disorders and issues impacting mental health professionals. Prerequisites: None (A previous course in General Psychology is recommended). Meets MnTC Goal 5.

PSYC1300 Child and Adolescent Psychology

3 cr.

This psychology course is an introduction and overview of the scientific study of child development from prenatal through adolescence. It includes topics like perception, learning, intelligence, motivation, developmental disorders, and parenting and peer influence on the developing child. Meets MnTC Goal 5.

PSYC1350 Lifespan Development

4 cr.

This psychology course is an introduction and overview of the scientific study of development throughout the life span from prenatal through old age, death, dying and bereavement from a developmental perspective. Meets MnTC Goal 5.

PSYC1400 Adult and Geriatric Psychology

This Adult psychology course is an introduction to adult and geriatric psychology from a lifespan perspective. This course examines topics from a developmental perspective, including sensation and perception, memory, intelligence and social cognition through adulthood. Meets MnTC Goal 5.

PSYC1450 Death and Dying

2 cr

This psychology course is an introduction to the concepts and issues surrounding death and dying. It examines these issues from a theoretical perspective with attention to ethical and moral issues from a multicultural perspective and the impact of death, dying and bereavement throughout the lifespan. Meets MnTC Goal 5.

PSYC1600 Human Sexuality

2 cr

This psychology course provides a comprehensive, up-to-date survey of the research findings and theories pertaining to human sexuality, and it helps the student apply this information to their personal lives. Meets MnTC Goal 5.

RAILROAD CONDUCTOR TECHNOLOGY

RRCC1110 Orientation

1 cr.

This is an opportunity for students to determine if a career as a conductor is right for them. Students will shadow conductors in a working rail yard and experience for themselves the physical and scheduling demands of the job. Upon successful completion of this course, the student should be able to describe railroad organization and general operations, policies and practices to ensure railroad safety, and the basic responsibilities of conductors. 5 hrs. lecture, demonstration/wk. Selective admission program - see a counselor about special requirements.

RRCC1120 Introduction to Conductor Service 4 cm

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. br.s. lecture, demonstration/wk. Selective admission program - see a counselor about special requirements. Prerequisites: Admission to the DCTC railroad conductor program and completion of the one-week orientation. (RRCC1110).

RRCC1130 General Code of Operating Rules

4 cr.

This course provides an in-depth study of the General Code of Operating Rules (GCOR). Upon completion of this course, the student should be able to demonstrate abilities to apply the General Code of Operating Rules to safe and efficient train movement and operations. 5 hrs. lecture/wk. Selective admission program - see a counselor about special requirements. Prerequisites: Admission to the DCTC railroad conductor option and successful completion of RRCC1120 with a minimum grade of "C".

RRCC1140 Mechanical Operations

This course covers mechanical operations that relate to conductor service. This is the second course in the conductor option of the railroad operations degree program. Upon successful completion of this course, the student should be able to describe the importance and application of freight care mechanical policies and practices to ensure safe railroad operations. 2.5 hrs. lecture/wk. Selective admission program - see a counselor about special requirements. Prerequisites: Admission to the DCTC's railroad conductor program and successful completion of RRCC1120 with a grade of "C" or better.

RRCC1150 Conductor Duties

2 cr.

2 cr.

Upon successful completion of this course, the student should be able to describe and apply railroad organization and general operations, policies and practices to ensure railroad safety, and basic responsibilities of conductor. This course includes safety and the general rules with which conductors must comply and teaches the techniques and administrative procedures conductors use on the job to perform safely and effectively. 2.5 hrs. lecture/wk. Selective admission program - see a counselor about special requirements. Prerequisites: Admission to the DCTC railroad conductor option and successful completion of RRCC1140 with a minimum grade of "C".

RRCC1160 Utilization of Railroad Equipment and Safety Stand

This course is designed for persons interested in pursuing a career as a Railroad Conductor. The student will study and demonstrate the accepted standards of railroad equipment utilization. They will also demonstrate knowledge and application of railroad safety rules and techniques for moving box cars. Prerequisites: Current enrollment in Railroad Conductor Certificate.

REAL ESTATE/PROPERTY MANAGEMENT

PMGT1101 Real Estate I

2 cr.

This course is an introduction to the exciting world of real estate that meets the requirements of 30 hours for pre-licensing education. Topics covered will include real estate and the law, the concepts of home ownership, the laws of agency and the brokerage business, forms of ownership, legal descriptions, and taxes.

PMGT1102 Real Estate II

2 cr.

This course meets the requirements for the second 30 hours of pre-licensing education. Topics covered will include listing agreements, buyer representation, real estate contracts, principles of financing, fair housing, environmental issues, and closing the transaction. Prerequisites: PMGT1101.

PMGT1200 Introduction to Property Management 1 cr.

This course is an introduction to the profession of property management. The fundamental techniques used for preserving and increasing the value and integrity of investment real estate will be covered. Special emphasis will be placed on determining and developing strategies to meet the owners' goals and objectives

PMGT1204 Real Estate III (Law)

2 cr.

This course meets the state requirement for Real Estate III. This course presents a practical look at the many laws that affect the ownership, sale, and management of real estate. Principles will be learned by reviewing and discussing actual cases. Special emphasis will be placed on agency law, fair housing, contract law, and any other laws and disclosures that real estate practitioners need to know.

PMGT1205 Loan Application/Processing

1 cr

This course covers the real estate loan process from pre-qualifying the borrower to determining which types of loans may be available and selecting which type would be best for the borrower. It includes a discussion of what the underwriters are looking for and how to prepare a loan for submittal for approval. A must course for those in, or desiring to be involved in, the financing aspects of residential and commercial real estate.

PMGT1207 Financing Instruments

1 cr.

This course covers the many types of financing instruments that are used today to finance the construction and purchase of real estate. It also looks at the specific clauses in mortgages and notes and the impact they have on borrowers and lenders. Special attention will be given to the many creative methods of financing real estate and how each may benefit the buyer and the seller.

PMGT1210 Appraisal Process

1 c

This course covers the process the appraiser must go through to comply with the requirements of the assignment. The student will learn that the process used is just as important as the results obtained by the appraisal. The student will also learn how to determine if comparable sales were "arms length transactions."

PMGT1212 Residential Appraisal Workshop 1 cr.

This course reviews the principles of the appraisal process and provides the student with the necessary forms and knowledge to complete a residential single family appraisal report. This course also is approved for 15 hours of real estate and appraisal continuing education.

PMGT1213 Managing Residential Property 1 cr.

This course covers all the basics of managing residential income property. The student will identify the various types of properties, compare the pros and cons of each, and develop good check lists for developing a very complete system for managing property.

PMGT1214 Life and Safety Issues

1 cr

This course covers issues necessary to protect the health, safety, and well being of occupants and property management employees of real estate investment properties. Topics covered are preventive maintenance inspections, proper disclosures, and procedures to follow when mishaps occur.

PMGT1215 Maintenance Management 1 c

This course covers the reasons for and the techniques of how to properly develop and manage a maintenance program that will protect the value of the asset being managed. We discuss the roles of property managers, resident managers, maintenance staff and outside service providers. Also discussed are methods of identifying risks and deciding which options might be available to deal with that risk.

PMGT1216 Managing Commercial/ Industrial Properties 1 cr.

This course covers the management and marketing of office buildings, industrial properties, and retail facilities. The student will compare the similarities and differences between these types of properties and residential investment properties.

PMGT1217 Risk Management and Environmental Issues 1 cr.

This course covers the reasons for and the techniques of how to properly develop and manage the various types of risk associated with managing residential property. We discuss the roles of property managers, resident managers, maintenance staff and outside service providers. Also discussed are methods of identifying risks and deciding which options might be available to deal with that risks

PMGT1219 Leases and Tenant Relations 1 c

This course covers rental contracts beginning with the legal definitions of the various forms of leasehold estates and the rights and obligations the landlords and the tenants each have. The students will learn what steps to take to determine the qualifications of a prospective tenant and how to negotiate and create an acceptable residential lease agreement.

PMGT1224 Income Capitalization Analysis 1 c

This course compares the various methods of estimating the market value of income-producing properties. It includes the pros and cons of gross rent multipliers, cap rates, cash on cash returns on investment, and analysis of the impact financing may have on the value of a property to a particular investor.

PMGT1225 MN Landlord/Tenant Law 1 c

This course covers the rights and obligations between landlords and tenants

PMGT1228 Community Association Management

This course covers one of the fastest-growing areas of real estate and property management, community association management. Recent statistics indicate that 50% of new residential properties being constructed are in some way a part of an owner's association. This course is a real hands-on, practical course on what you need as a homeowner involved in an association, or a real estate salesperson involved in buying or selling townhomes or condominiums, or a property management professional.

PMGT1229 Subsidized Housing

1 cr.

This course covers Section 8 and other forms of subsidized housing. Prerequisites: Handouts will be provided.

PMGT1230 Income Property Marketing 1 cr.

This course covers all phases of income property marketing from defining goals and objectives to evaluating the results of that plan. Emphasis will be given to the importance of paying attention to the details of a good marketing plan, and the power of feedback and adjustments.

PMGT1232 Cash Flow Analysis

1 cr.

This course covers one of the most powerful tools a real estate investor/appraiser can use. The student will learn how to estimate future performance of income-producing property, and how to evaluate those future cash flows by using present day values. The course will cover capital gains, and the king of all tax shelters, the 1031 tax deferred exchange.

PMGT1302 Planning and Operating a Small Business 1 cr.

This course is an introduction to the designing, developing, and operating of a small business and/or an independent contractor practice. This is a must course for individuals beginning their careers in Real Estate, Appraisal, Financing, Insurance or Property Management. We start with how to develop a business plan, implement that plan, and conclude with how to make adjustments to keep up to changes in the business environment.

PMGT1304 Marketing Strategies for Small Business 1 cr.

This course covers one of the most important areas of operating a small business or independent contractor practices. The student will learn how to maximize results from a minimal amount of dollars by using proven marketing strategies. A must course for those entering the field of Real Estate, Property Management, Appraisal, Financing or Insurance.

PMGT1401 Real Estate Math and Calculator Basics 1 cr.

This course covers the basic operation of the Hewlett-Packard HP12C financial calculator. All of the most common applications used by real estate professions, appraisers, property managers and loan officers are covered in this course. This is definitely one of the most powerful tools available for the true professional.

PMGT2020 Negotiating for Agreement

1 cr.

This course covers the importance of developing negotiating skills and the basic techniques used in negotiating. We will look at everyday situations and discuss how these strategies can help us in the business world and in some personal situations.

SOCIOLOGY

SOCY1010 Marriage and the Family

3 cr.

This course embodies a survey of human relationships. This course will examine and explore both the practical side and the sociological side of human relationships. Topics include dealing with love, conflict, sexuality, parenting, relationship violence and gender roles. The focus of the course is to expose students to the cultural diversity of marriage and the family. To give students a fundamental understanding of the sociological perspective on this topic and apply a theoretical/historical perspective. Meets MnTC Goal 5.

SOCY1110 Introduction to Sociology

3 cr.

This course covers the basic concepts and terminology used in sociological studies. Sociology is broadly defined as the study of human social organization and social behavior including its forms and consequences. It will focus on the characteristics of human group life as they relate to the structure of the social environment and its influence on the individual. This course is designed to introduce students to the theories, concepts and areas of inquiry that typically characterize sociological analyses. Students will have the opportunity to examine the ethical/dimensions and issues facing political, social, and personal life as it relates to the topics in Sociology. Students will explore their own citizenship and find ways to apply their ideas and goals to civic learning and service learning through embracing facets of human society and the human condition. Meets MnTC Goal 5.

SOCY1150 Race and Gender

2 cr

This course is designed to enable students to obtain a greater understanding of various minority/dominant relations in the United States. It will focus on class, gender, race/ethnicity, and sexuality from a historical and sociological side of human relationships. We will examine and explore both the theoretical and social approach to minorities and minority relations. Topics include historical perspectives, identity, social trends, oppression/exploitation of minority groups in the U.S., future trends in minority relations. The focus of the course is to expose students to the cultural diversity of the U.S. from every classification of minority. To give students a fundamental understanding of the sociological perspective on this topic and apply a theoretical/historical perspective. Global perspectives will be addressed. Meets MnTC Goal 5.

SOCY1210 Social Issues Changing World

3 cr.

An examination of the many ways in which the United States is interconnected with other societies in a changing world. This changing globalization process and related problems that threaten human well-being are studied from a sociological perspective. Meets MnTC Goal 5.

SOCY1250 Juvenile Delinquency

2 cr.

A sociological examination of juvenile delinquency and societyís 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 Meets MnTC Goal 5.

SOCY1300 Introduction to Anthropology

3 c

Anthropology is the scientific and humanistic study of humankind in all its varieties and of human nature in its universal sense. This course introduces students to the four subfields of anthropology: archaeology, cultural anthropology, languages and culture, and physical anthropology. Students will learn to identify and apply anthropological methods of study through a sociological and anthropological approach to humanity. Meets MnTC Goals 5 & 10.

SPANISH

SPAN1100 Beginning Spanish I

4 cr

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 for the true beginner, but 1 or 2 years of any high school language is helpful). Meets MnTC Goal 8.

SPAN1200 Beginning Spanish II

4 cr.

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 high school Spanish could begin with this class. Those with 4+ yrs. would be too advanced). Meets MnTC Goal 8.

SPEECH

SPEE1015 Fundamentals of Public Speaking

3 cr.

This speech course introduces students to the factors involved in becoming efficient communicators in both individual and group presentations. The course emphasis will be placed on audience analysis, research and organization, speech construction, and delivery techniques. Meets MnTC Goal 1.

SPEE1020 Interpersonal Communication

3 cr.

This course focuses on the practical and theoretical concepts of human communications and the styles used in personal, social and professional environments. Students will also acquire skills in critical thinking, perception, listening, verbal and non-verbal expressions and conflict resolution. Meets MnTC Goal 7.

SPEE1030 Intercultural Communications

3 cr.

This course studies the cultural differences and how it affects communication. Topics include definitions of communication; definitions of culture and diversity of cultural patterns; cultural variables influencing communication such as language, non-verbal behavior, perception, values, and beliefs; facts that facilitate or inhibit intercultural communication; and examination of American culture in comparison to other cultures. Meets MnTC Goals 7 & 8.

SPEE1042 Small Group Communication

3 cr

This course provides instruction in theory and practice in the application of skills learned in the study of small group communication principles. Students will spend a substantial part of their course time participating in small groups, completing group projects, and analyzing group interaction. Meets MnTC Goal 1.

SPEE1050 Nonverbal Communication

2 cr.

This course includes facial expressions, tones of voice, gestures, eye contact, spatial arrangements, patterns of touch, expressive movement, cultural differences, and other "nonverbal" acts. Research suggests that nonverbal communication is more important in understanding human behavior than words alone--the nonverbal "channels" seem to be more powerful than what people say.

SUPERVISORY MANAGEMENT

INDS1000 Individualized Studies Career Exploration

This course is designed for the planning efforts of students who are enrolled in the Individualized Studies major. This interactive course is for individuals to uncover the career exploration process by understanding how personal characteristics develop interests, values and abilities as they relate to career choices. This course is required for Individualized Studies students and will result in a comprehensive plan for degree completion at the college.

SMGT1000 Principles of Supervision

3 0

Ease the transition to supervisor or bring yourself up to date with today's supervisory/management practices. Study the role and responsibilities of supervisors including planning, organization, staffing, directing and controlling. Develop new skills in communication, correcting or rewarding performance and overall management of resources.

SMGT1022 Leadership

3 cr.

Learn concepts to become an effective leader in today's global business environment. Determine your leadership style and the implications of that style on workgroup performance. Incorporate ethics, corporate mission, vision and culture into a powerful leadership strategy. Enhance your ability to motivate and positively influence others in a increasingly diverse workforce.

SMGT1028 Management Effectiveness

7 61

Learn practical tools to manage time and stress. Develop habits to increase personal productivity and create an individual time management plan. Set priorities, delegate and reduce time wastes and stressors. Explore strategies to improve time utilization in workgroups.

SMGT1033 Business Law and Ethics

3 cr.

Examine workplace issues impacting supervisory responsibilities and explore the influence of ethics on individuals and organizations. You will be introduced to the American legal system. Understand civil, criminal, TORT, contract, employment, and labor laws and how they affect business.

SMGT1080 Introduction to Distribution Careers

1 cr.

This course is designed to provide students with an overview of distributorships. Included is an examination of the role of distributors bringing goods to market and adding value through distributor services. Network with industry specific professionals to learn about career opportunities in a growing market.

SMGT1081 Business Principles

3 cr.

This course is an introduction to the operation and organization of business enterprises and will provide students with a comprehensive and foundational view of business organizations, operations, finance, production, distribution, business law, diversity, and other business concepts and activities. Students will learn how these aspects of business enterprises are essential to our economic system and the global economy.

SMGT1082 Distribution, Operations & Logistics 3 c

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.

SMGT1160 Fundamentals of Meeting, 2 cr Conference & Event Manage

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, 3 cr. Conference, and Event Management

Whether you are interested in the field of meeting planning or already an experienced meeting planner, this is the hands-on, dynamic course you have been looking for to hone your skills and learn new techniques. This course delivers tricks of the trade and new twists while refreshing time-tested practices. Students will learn how to apply the Convention Industry Council meeting profile and request for proposal accepted practices. Prerequisites: SMGT1160 or advisor approval.

SMGT1162 Special Event Coordination and Management

3 cr.

Learn strategies to effectively procure, organize, implement and monitor the products and services that bring an event to life. This course focuses on event design basics, room set-up, event flow, entertainment, food and beverage options, and communication. Students will research and shop for a case study special event venue and design a boardroom presentation to present venue and theme recommendations to a boss or client; learn vendor selection techniques, and event specifications will be created and vendor/venue work orders reviewed. Get acquainted with music licensing, host liquor liability, the Americans with Disabilities Act (ADA), and preparation for a pre-convention briefing. Students will explore planner resources such as convention and visitor bureaus and destination management companies. Prerequisites: SMGT1161or advisor approval.

SMGT1163 Event Promotion

3 cr.

Promote your meetings, events, festivals, tradeshows and conventions with the skill of an experienced event marketer. This course combines marketing and public relations expertise to make your event a success! Curriculum includes a business simulation and integrates key business skills such as critical thinking, team dynamics and communication.

SMGT1165 Introduction to Hospitality Management 2 cr.

If travel, hospitality and tourism are exciting and you have always fantasized about a career serving those away from home, this course is the introduction you have been looking for. Learn about management and operations of lodging and foodservices, within diverse organizational models such as private clubs, cruise lines, casinos and amusement parks. Students are also introduced to meeting, trade show and event management. Expectations and resources for careers in these service industries are integral to the course curriculum.

SMGT1166 Event Design

7 cr

Meeting and event planners who want to increase production value of their events will find this course essential to achieving well-designed and orchestrated events. This course provides a thorough knowledge of event design principles, processes and practices. Students will learn about the various decorative elements used in special events and how production factors integrate to produce a winning event. Students will learn the basis of good design through study of design principles and practices. Through case studies students will learn techniques and resources to apply event design.

SMGT1167 Meeting & Event Sponsorship 3 cr

Sponsorship dollars can mean the difference between financial success or ruin for an event. Sponsor visibility and benefit to the sponsoring organization can make or break their business. Establishing ROI for the event as well as the sponsoring organization is important to the symbiotic relationship between these entities. For the event planner, the value of sponsorships to the event and its attendees, as well as how to integrate the sponsorship into the event are key elements of success. Fundraisers, who frequently double as the event planner, need to know how to place value on sponsorships, maximize the sponsor experience and where to find more sponsors. Event planners and fundraisers will learn state-of-the-art methods for finding, securing and retaining sponsors in this class. Prerequisites: SMGT1160, SMGT1161, SMGT1162, SMGT1163, or instructor's approval.

SMGT1168 Trade Show Management

3 cr.

Students new to exhibit management or experienced professionals who want to brush up on their skills will find this course essential to their career. Through the extensive case studies, students will learn how to manage exhibit operations from start to finish and become acquainted with marketing the trade show to exhibitors and attendees. Information and resources to manage essential trade show components such as site selection, floor plan layout, program planning, housing, registration and transportation will be explored.

SMGT1169 International Meeting Management

Globalization is changing how we do business, and its impact on meeting and event management is here to stay. Novice and experienced meeting planners who desire to work in the global arena will find the practical sourcing and planning knowledge found in this course to be the bridge to international business they have been looking for. International protocols are essential elements of the curriculum. This course focuses on the international elements of meeting planning and skills required to segue U.S.ñtrained meeting planners to the international market including selection of international venue, sourcing service and liaison support, international venue contracts, shipping, exhibitions, insurance considerations, food service and communication.

SMGT1170 Meeting Planning for 2 cr. the Administrative Profession

Administrative professionals plan the majority of meetings under 100 people without formal meeting planning education or experience. This course provides fundamental knowledge and techniques to ensure success of planning small meetings.

SMGT1220 **Work Teams**

Develop the skills and knowledge to cultivate productive work teams. Identify the types and benefits of teams and work groups and the stages of team development. Learn to develop team mission, purpose, and goals. Apply techniques for team decision making and conflict resolution.

SMGT1231 Planning and Project Management

2 cr. Learn how to plan and control projects from start to finish including: determining scope/objectives, scheduling/sequencing, budget, action steps, assigning personnel, authority/responsibility, standards, contingency planning and methods for monitoring and evaluation of the projects success. Use tools such as Gantt Charts, flow charts and others. Plan a work or personal project applying the skills and knowledge learned in class.

SMGT1240 **Meeting Management**

Learn to prepare for and conduct effective meetings. Develop purpose, desired results, agenda, ground rules and action plans. Identify appropriate facilities, equipment, and room arrangements for various types of meetings. Learn to use tools to facilitate group participation, decision making, and consensus building including how to handle disruptive behavior. Facilitate a meeting using the strategies and tools learned in class.

Effective Business Communication

Learn and practice skills to communicate your message directly and effectively to generate the desired results, whether in a meeting, presentation or written media. Integrate multi-media to support your ideas. Assess your audience prior to communicating to maximize effectiveness. Facilitate group participation including handling disruptive behavior. Learn and apply skills in any situation to achieve win-win negotiations.

Managing Customer Service

Identify how supervisors can plan for and support excellent customer service through developing a service strategy. Examine the impact of employee training and decision making authority on customer service. Analyze models of service for internal and external customers. Learn tools and techniques for gathering feedback and handling complaints. Consider the relationship between customer service and quality.

SMGT1260 **Managing Teams**

Develop the skills and knowledge to cultivate productive work teams. Learn to defuse resistance to change and foster support and involvement in developing a shared vision. Master conflict resolution and negotiation strategies essential for supervisors and others in leadership positions in fostering self managed work teams.

SMGT1405 **Managing Performance**

3 cr.

Manage employee performance by establishing performance expectations, identifying and providing needed training and support, monitoring performance, and providing formal and informal feedback. Practice conducting employee performance evaluations. Learn methods to take corrective action. Identify sources of inadequate performance - skills and knowledge, processes and systems, motivation and personal issues - and determine appropriate resolution to each. Coach and mentor good performers to higher levels.

SMGT1422 Supervision for Individuals 3 cr. with Limited English

Designed for those who speak English as their second language, this course is designed to help transition to supervision and management successfully. Learn cultural differences and how they affect motivation, communication, assertiveness and conflict resolution.

SMGT1441 Introduction to Human Resource Mgmt. 3 cr.

This course focuses on providing supervisors and managers an overview of the principles and practices of Human Resources Management functions in today's organization, Compensation and Benefits, and Managing Employee Relations

SMGT1601 **Financial Management**

2 cr.

This course provides the non-financial manager/supervisor an understanding of business accounting terms, basic accounting cycles, budgeting, cost control, income statements, cash flow analysis and other financial statements. Develop and apply skills in basic accounting principles and concepts to make sound business financial decisions.

SMGT1630 **Presentation Skills**

2 cr.

Develop a tool kit of presentation techniques that will serve you well in making both formal and informal presentations. Learn to analyze your audience. Develop an effective introduction, body, and conclusion. Become adept with using audio visuals. Discover the confidence of expressing your ideas to others with conviction, with control, and without fear.

Introduction to Hospitality and Tourism SMGT1660

This course introduces students to the largest industry in the world ñ tourism and hospitality. Learn about management and operations of tourism and travel organizations such as visitor and convention bureaus, travel agencies, hotels/motels/resorts, airlines, cruise lines, tour operators, car rental companies, casinos, amusement parks and more.

SMGT1665 **Lodging Operations**

3 cr.

A lodging operation is comprised of many departments, each of whom must work together with precision to fulfill guest expectations. Course curriculum addresses the complete range of lodging operational considerations from the front lobby guest experience to the shipping and receiving dock.

SMGT1670 **Lodging Systems and Technology** 2 cr.

Technology is integral to success in todayís 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**

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.

Hospitality Space and Logistics Management 3 cr.

This course provides a hands-on tour of the front office in a lodging establishment. Curriculum includes a computerized simulation of the front office processes from guest check-in thru night audit. This is on-the-job training in the classroom.

SMGT1685 Hospitality and Tourism Guest Services

Hospitality and tourism customers experience satisfaction when the combination of positive product and service exist. In this course students will learn listening techniques and customer service skills. Hospitality and tourism case studies, tapes and other media give students first-hand experience in providing quality guest services. Problem solving is an important element of the curriculum.

SMGT1690 Successful Sales and Closing Strategies 3 cr.

This course provides in-depth sales, proposal and presentation training. Customer satisfaction starts at the beginning of the sales process and continues through post-sale planning. The post-sale relationship is important to the sales cycle in order to retain the customer's business. Curriculum includes hands-on hospitality and tourism case studies and simulations that address the sales cycle from first visit to retention planning and action.

SMGT1695 Hospitality Risk Management 2 cr.

Learn to recognize potential risks in the hospitality environment and to prioritize those risks for action. Application of practical strategies to management risks of people, property and goodwill are key elements of success. Learn risk management techniques using case studies and real-life scenarios.

SMGT1776 Organizational Behavior 3 cr.

Review, discuss, and analyze what makes an organization of any size and purpose, successful. Examine the ways that systems and values help to make up the dynamics of an organization's culture. Discuss the ways individuals work inside an organization and ways they influence those around them. Consider in detail what this all means in the context of today's call for constant change.

SMGT1825 Interpersonal Effectiveness 2 cr.

Introduce managers, supervisors and employees to a variety of interpersonal communication techniques that will strengthen respect and relationships. Practice skills in active listening, giving and receiving feedback, assertive communication, handling emotional behavior, dealing with multi culturalism and valuing differences and interpret non verbal communication. Learn to identify and remove communication barriers. Identify potential conflict situations and formulate strategies to resolve them.

SMGT1875 Training and Developing Employees 3 cr

Consider employee training and development needs from orientation through progressive job training. Learn how to determine training objectives, plan, prepare, conduct, and measure benefits of work group training. Assess learning styles of trainees, and learn effective training techniques to reach a wide range of learners. Design and deliver a work-related training session. Learn to coach work group members toward improved performance. Identify guidelines and steps for coaching. Develop individual improvement plans.

SMGT1950 Mentoring 1 cr.

Learn how to develop a corporate Mentoring program. Analyze corporate cultures to determine what level of support is needed for developing an internal or external Mentoring program. Recognize the differences between mentoring, coaching, managing, and supervising. Learn how to identify, select, train, and match mentees, mentors and coordinators. Develop an action plan that ensures corporate buy-in. Develop a plan for launching your program with support materials and components in place. Develop a system of feedback which incorporates confidentiality. Review and evaluate mentoring programs.

SMGT1970 Casino Operations 3 c

This course provides a comprehensive view of casino operations. From the slot club, cage operations, casino floor design and into the management office, students will be guided through the operations of a casino and introduced to patronage motivation. Prerequisites: None.

SMGT1975 Casino Products: Protections and Probabilities

3 cr

From fraud and theft protection, to understanding the theory of various casino games, this course includes mathematic principles, probability theory, basic accounting and reporting information necessary for success in the casino industry. Prerequisites: None.

SMGT2001 Management Skills I, 3 cr. Foundations in Management

This course is part I of three parts of the process of obtaining certification as a Certified Manager, from the Institute of Certified Professional Managers.

SMGT2002 Management Skills II, Planning & Organizing 3 cr. This course is part 2 of three parts of the process of obtaining certification as a Certified Manager, from the Institute of Certified Professional Managers. Gain knowledge planning and organizing, and apply skills related to planning and strategy, operations management, project management, decision making, team management, organizational structure and human resources management. Prerequisites: SMGT 2001.

SMGT2003 Management Skills III, Leading & Controlling 3 cr. This course is part 3 of three parts of the process of obtaining certification as a Certified Manager, from the Institute of Certified Professional Managers. Gain knowledge leading & controlling, and apply skills related to leadership principles, empowerment and delegation, managing change, conflict and culture, operations control, quality management and financial management. Prerequisites: SMGT2002.

SMGT2015 Accelerate Your Learning Potential 2 cr.

Effectively apply your learning power to its greatest capacity. Learn a variety of principles, tools and techniques for learning more in less time and deeply retaining it. Learn study tools for note taking, and test taking. Manage your emotions to keep stress low and motivation high. Apply learning styles, multiple intelligences, mind mapping and other tools to help you learn the way to learn best and accomplish your goals. Access how accelerated learning principles can be applied into your work and personal life. Prerequisites: Course required for students enrolled in the SMGT evening program.

SMGT2046 Fundamentals of Management & Diversity 4 cr. This course will provide students with the background and theories of supervision and management, and the key skills required to be a successful supervisor, manager and entrepreneur. Learn to

effectively manage a ever increasingly diverse workforce. SMGT2105 Managing Diversity 3 cr.

Identify what it takes to become a diversity leader in your organization and community. Learn the complexities of managing 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 propfessional growth and mobility.

SMGT2110 Leading a Multicultural Workforce 3 cr.

Learn how to adapt global and multicultural contexts into traditional leadership theories. Develop assimilation strategies that do not lose the many advantages that diversity offers. Examine the leadership challenges regarding ethics, social responsibility, accountability and training in a multicultural environment. Choose appropriate leadership styles to build teamwork and collaboration. Raise the awareness of the workforce at all levels to leverage the value of diversity.

SMGT2115 Multicultural Mentoring I

2 cr

This course explains what multicultural mentoring is and how it can be used as an effective tool to develop individuals, foster teamwork, multicultural understanding and organizational effectiveness and productivity. This course places the student in the role of mentee and mentor. As a mentee, the student will learn how to develop and acquire new skills and abilities through a multicultural mentorship partnership. A mentor/mentee agreement will develop a path to growth opportunities. This course is a prerequisite for SMGT2116, Multicultural Mentorship II.

SMGT2116 Multicultural Mentorship II

1 cr.

This course builds on what multicultural mentoring is and how it can be used as an effective tool to develop individuals, foster teamwork, multicultural understanding and organizational effectiveness and productivity. This course places the student in the role of mentee and mentor. As a mentor, you will utilize skills learned to help their mentee succeed. A mentor/mentee agreement will develop a path to growth opportunities.

SMGT2120 Multicultural Conflict Resolution 2

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 communicational skills, developing mediation techniques, understanding the conflict management continuum resolving multicultural conflict, and comprehending the Alternative Dispute Resolution progression.

SMGT2125 International Business

3 cr.

Understand the growing influence of globalization on all areas of business. Assess the global business environment which includes trade, outsourcing, off shoring, legal, technological, political and social and ethical perspectives. Learn the affects of cultural contexts in negotiation and management. Explore strategies for international and global business.

SMGT2126 Import and Export

3 cr.

Students will realize the reasons, risks and rewards of international trade, with a comprehensive focus on the components of import and export operations. Students will explore research on locating markets and product sources. Curriculum includes import and export logistics, including documentation, transportation, and legal regulations.

SMGT2127 International Enterprise Transactions 3 cr

Understand different forms of international business transactions. Examine the role of business organizations in these transactions and focus on international dispute and how business disputes are resolved. Comprehend the role of international trade agreements such as NAFTA, ASEA, and MERCOSUR, and their impact oninternational enterprise transactions.

SMGT2128 Trade Finance

3 cr.

Obtain basic understanding of financial issues faced by a firm operating in a multinational environment. Topics include: balance of payments concepts, exchange rates theories, and currency markets. Interpret actual events in the economy and explain actual economic and financial developments, with their implications for international financial transactions.

SMGT2129 Global Supply Chain Management 3 c

Study origins, evolution, current state and trends of supply chain. Understand the critical components of supply chain: Forecasting, Procurement, Logistics/Transportation, and Sales and Inventory. Explore strategies for global business. Improve students' personal, communication, leadership, negotiation and presentation skills.

SMGT2950 Prior Experiential Learning Portfolio Development

1 cr.

This course will guide students through the creation of an individual degree plan for the Supervisory Management AAS degree program or other participating programs at the college. Students will assess their previous education, prior learning from work and life experiences and develop a portfolio of prior learning which will be submitted for review. Any credit(s) awarded will be in compliance with the standards, principles, and procedures as published by the Council for adult and Experiential Learning. Prerequisites: Program advisor approval.

VISUAL COMMUNICATIONS

VCOM1001 Intro Visual Communications

2 cr.

This is an introductory course that prepares all students for entry into the Visual Communications field. General overviews will be given of the visual arts, photography and graphic design fields. Students will learn basic computer operation, how to use the local network, and learn general operational methods used in the Visual Communications Department. Additionally, students will learn to prepare, mount and display artwork. All these skills are a prerequisite for other courses in the Visual Communications Department.

VCOM1006 Color Theory and Applications 2 of

This course covers the historical background of color. Artist colors are explored using terminology in conjunction with painting mixing to reflect the terminology. Creative color assignments are given to enhance their knowledge. Commercial reproduction of color will be addressed with the translation of artist colors to print colors. Color interpretations and trends are also discussed. Digital color, corrections on digital files and how color works on the computer monitor and web will be covered as well as printing from digital files. Color management of files will also be included.

VCOM1010 Intro Photoshop

2 cr.

This is an introduction of the basic tools used for image manipulation in Adobe PhotoShop. Image modification and compositing, use of the scanner, and mastery of PhotoShop tools are stressed. Image adjustment and enhancement and layer masks are also taught. **Articulated**

VCOM1015 Layout I

2 cr.

This course covers development of page layout and basic graphic design processes. It provides an overview of the graphic design profession and a historical framework for modern graphic design/page layout practices. The student will overcome visual design problems by employing design elements and principles used as the foundation of any design work. It includes the "how to's" of creating effective page layout for print and screen. Practical applications of typography and use of visual concepts will be explored. This course will utilize hand layout tools exclusively.

VCOM1021 Intro Photography

3 cr

In this course the student will learn how to use all the manual 35mm camera controls to create good black and white photographs. We will practice using the motion and depth-of-field controls in different kinds of outdoor and natural lighting conditions. The student will combine the knowledge of different films and exposure techniques with the study of artistic composition to produce-pleasing images. Discussion of basic accessories and special techniques will round out the camera knowledge.

VCOM1025 Law and Ethics for Visual Communications 1 cr

In a world of digital information, new opportunities and markets are opening daily. Now, more than ever, visual communicators must understand the need to understand their legal and ethical responsibilities, both as business people and artists. This course will explore the rights and responsibilities of individuals involved in collecting, producing, and selling images.

VCOM1030 Visual Design Fundamentals

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. **Articulated**

VCOM1032 **Interactive Design Fundamentals** 2 cr.

This course will explore the fundamentals of design, development and delivery of computer-based multimedia. Students will be introduced to basic HTML, image preparation and web page tools/ software. The elements and principles of design along with general presentation skills and professionalism will be practiced. Special emphasis will be placed on 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. Prerequisites: VCOM1040.

VCOM1040 Basic Drawing

This course is designed to provide the artistic student the basics of drawing. General methods, mediums and styles will be explored. The elements and principles of art and design will be applied to various drawing projects. Uses of drawing in design are included in the focus. Students will study presentation and preservation of original artwork. **Articulated**

VCOM1051 **Scale and Perspective Drawing**

2 cr.

This beginning drawing course covers drawing techniques for drawing linear perspective in a rapid manner. Drawing without tools is emphasized although tool use is explained and demonstrated by the student for both sketchbook drawing and drafting board drawing. One, two and three point perspective drawing is explained. Drawing style, composition and use of color are also explained.

VCOM1060 Creative Problem Solving

In this course various methods of solving creative problems will be explored through design projects. The elements and principles of design will be utilized applying methods of creative problem solving.

VCOM1080 Photo Styling

2 cr. Photo styling involves the art of composing, arranging , and preparing a photographic set for the photographer. Many fundamentals of Photo Styling concepts come by way of historical movements in art history. Successful photo stylists also rely upon and refer to artistic conventions such as scale and perspective, color theory, composition, proportion, and form. Additionally, stylists will have a working knowledge of photography, lighting, and post-production methods. In this course students will learn about the role of photographers, stylists, and art directors. Students will apply art theory and technical concepts to practical styling projects such as food photography, "table-top" product photography, and interior architectural photography.

VCOM1095 Illustration Fundamentals

This course covers the basic concepts in illustration techniques. Projects will be assigned to develop illustration skills and uses of various media. The history of illustration and general design styles will be examined. Visual concept development and communication through illustration will be explored through research and application. Prerequisites: VCOM1040.

VCOM1300 Intro to Adobe Lightroom

Adobe Lightroom helps photographers organize and manipulate their images. It works hand in hand with Adobe Photoshop and Bridge but adds many new options and features. This course will explore the power and features of Lightroom and how it can import, catalog, save and organize thousands of images and save the photographer a lot of time upfront in the workflow. Then Lightroom's develop and print modules can modify, manipulate and improve digital images in a non-destructive manner. We will wrap up this class with practice outputting images to web, to CD and to labs to create products and images for client viewing. Bring a few hundred images to class for hands-on practice during this class. Prerequisites: VCOM1001 or equivalent computer experience.

VCOM1310 Printing Lab I

2 cr.

This course serves as the first half of the VCOM 1540 - Intro Custom Printing. The emphasis will be on the operation of the black & white enlarger and covers the use of polycontrast filters and other print enhancement techniques to produce high quality enlargements. Various projects will help the student develop a keen eye for density and contrast judgments. The second half and sequential course to this one is VCOM 1320.

VCOM1320 **Printing Lab II**

2 cr.

This photography course serves as the second half of the Introduction to Custom Printing (VCOM 1310) and picks up where Printing Lab I leaves off. After reviewing and practicing the necessary skills, techniques and equipment needed to produce good b/w enlargements a thorough discussion of color theory will be covered. Projects in color correction and judgments will constitute the main areas of study in this course. Prerequisites: VCOM1310.

VCOM1330 Color Printing Lab I

This photography course serves as the equivalent to the first half of VCOM 1560- Custom Color Printing. The student will be introduced to custom color enlarging techniques on different color papers to become more proficient at color and print quality judgment. Techniques on dodging, burning and vignetting will be covered as well as other techniques. Prerequisites: VCOM1310 or VCOM1541 and VCOM1320.

VCOM1340 Color Printing Lab II

This photography course serves as the equivalent to the second half of VCOM 1560- Custom Color Printing. A custom printing technician needs to be able to produce large, professional quality color enlargements ready for selling and displaying. This course prepares the student for such a task by covering large format custom enlarging techniques on different color papers as large as 30 x 40 inches. Techniques on enhancing, mounting, matting, texturizing and displaying large prints will be covered. Prerequisites: VCOM1330 and VCOM1541. Varies.

VCOM1370 North Shore Photography Workshop

This course is a 3-day field trip to the North Shore of Minnesota. Here we explore the tips and techniques of effective nature photography. We spend part of the time in informative lectures and slide shows held on site with the rest of the time spent in the field under the guidance of the instructor. Topics such as advanced composition, creative use of filters, lens and viewing angles, difficult metering situations and effective equipment operation are covered throughout the workshop. Students will come away with a new appreciation and understanding of nature photography as well as some great images of one of Minnesota's most beautiful areas. Repeatable for up to three credits. Prerequisites: VCOM1021 or equivalent.

VCOM1380 **Basic Photography**

Using the 35mm camera and most of its controls will be the basis for this on-line photography course. The student will learn how to create good exposures through the use of f-stop and shutter speed controls in natural lighting conditions. In this course we will concentrate on using the depth-of-field controls in emphasizing creative image control. The student will combine the knowledge of different films and exposure techniques with the study of basic artistic composition to produce pleasing images.

VCOM1410 Intro Illustrator

2 cr.

This course is a comprehensive look into the drawing tools of Adobe Illustrator, a computer illustration application. Students will develop skills using the basic drawing tools. Use of the transformation tools, templates, layering, spot and process color and file output will be emphasized. Prerequisites: VCOM1001 recommended. **Articulated**

VCOM1415 Typography Fundamentals

2 cr

Students will learn the basics of typography. Measurement, type fitting, design with type and an appreciation of type in the design process will be stressed.

VCOM1422 Print Process I

2 ci

Students are introduced to the history of print and explore a variety of print processes (flexo, letterpress, lithography, digital, etc.) A general overview of print process will include: basic paper characteristics and selection, imposition and folding, color keys, and job work flow.

VCOM1430 Intro InDesign

2 ---

Students will become familiar with Adobe InDesign as an electronic publishing program. Emphasis will be placed on software operation. Use of text, graphics, tabs, style sheets, and master pages will be incorporated into projects. Prerequisites: VCOM1001 recommended.

VCOM1435 Proofreading Fundamentals

1 c

Students will learn basic proofreading techniques. Proofing marks will be learned and used to mark text. Proofing techniques will be used to identify proofing errors.

VCOM1440 Vinyl Signage

1 (

Students will become familiar with the vinyl sign maker using FlexiSignPro software. Basic signage will be discussed. Projects will include single and multi-color vinyl. Transfer, weeding and registration will be covered. VCOM1410 recommended.

VCOM1515 Photo Lighting Techniques

2 cr.

The essence of good photography is the ability to recognize and expose for different lighting conditions. This course covers the use of all types of light meters under all different lighting conditions from indoor flash to outdoor and difficult light. This will be a study of the properties of light ranging from color temperature to direction and quality of both natural and artificial lights. Other related areas include how different film, filters, and lenses react to these lighting conditions. Prerequisites: VCOM1021 required (may be taken concurrently).

VCOM1520 Basic Processing & Monitoring

3 c

In this course the student will be introduced to the fundamentals of black/white and color film and paper processing. With the emphasis on quality, we will cover how processing, both by manual sinklines and by automatic machines, affects the quality and consequentially the salability of the final print. Four different b/w processes and three color developers will be covered. The plotting and monitoring of all these processes will be the heart of this course.

VCOM1525 Basic Darkroom Techniques

4 cr.

In this course the student will be introduced to the fundamentals of black/white film and paper printing and processing. With the emphasis on quality, we will cover how film processing, by both manual sinklines and automatic machines, will affect the overall quality and salability of the finished b/w print. The science behind the proper developing and use of photo materials will be discussed, touching on EPA and OSHA concerns, creative use of different papers and enhancement techniques to explore niche markets, and techniques will be explored to complete the skills needed to be a successful and creative darkroom artist.

VCOM1530 Copy and Restoration

1 cr.

Old photo restoration, retouching, toning and reproduction are the main emphasis of this course. The student will experience the gratification of copying old black/white and color photographs by using copy camera and retouching techniques to repair minor aging and damage. Hand coloring and defect correction through the use of oils and pencils will be covered. Prerequisites: VCOMI021 required.

VCOM1541 Introduction to Custom Printing

3 cr.

Beginning with the basic operation of black and white enlarger, this course will cover all the skills necessary to create prize-winning enlargements. Projects include variable contrast printing, print enhancement techniques, different papers and textures, and various negative to print size formats. An introduction to color printing will include a thorough discussion of color theory and then the practical application of color adjustment in the making of contact sheets and high quality enlargements.

VCOM1550 Machine Printing Systems

3 cr.

This course covers the aspects of using semi-automatic machines for printing high quality proofs and enlargements. The emphasis will be on the techniques and concepts of equipment operation, set-up, and color balancing. Projects will include the handling of difficult negatives, color copy negatives, package printing and color correction techniques on at least four different types of printers. A good understanding of color theory and the ability to recognize and correct color problems will be at the heart of all the projects and discussions. Prerequisites: VCOM1520, VCOM1540.

VCOM1561 Custom Color Printing

3 cr.

The ultimate test of a custom printing technician is producing large, professional quality color enlargements ready for selling and displaying. This course prepares the student for such a task by covering large format custom enlarging techniques on different color papers as large as 30x40 inches. Techniques on enhancing, mounting, matting, texturizing and displaying large prints will be covered. Prerequisites: VCOM1310 or VCOM1541 and VCOM1320.

VCOM1565 Color Printing Systems

4 cr.

This course builds on the printing skills from the Basic Darkroom Techniques course by providing the theory and practice of traditional color printing by both automatic and custom printing equipment. At the heart of this course is a thorough understanding of color theory, color application, color recognition and color adjustments and management as it relates to the production of high-quality color photographs in all facets of the industry. The student will use numerous custom and semi-automatic color printing devices to produce color photographs ranging from wallets to 3-foot enlargements. The ultimate test of skills in this area is for a photographer or photo technician to be able to recognize and create a high-quality photograph in order to stay competitive in the industry. Prerequisites: VCOM1525.

VCOM1570 Portrait Photography

2 cr.

This course covers the use of studio lighting and cameras to produce professional looking portraits. Emphasis will be on the use of medium (120) format camera and film to capture images of people. A critical skill in this area is the ability to use the correct lighting to enhance the character and features of the customer. Projects will also include the use of gray cards, light meters, and posing techniques. Prerequisites: VCOM1021, VCOM1515.

VCOM1580 Intro Digital Imaging

2 cr

This course introduces the student to the technology needed to capture a digital image, manipulate it and then output the image back to a hardcopy. As the technology changes we will incorporate it into this course. Discussions of concepts, philosophy and industry impact of this technology will be held in each class session to help the student to understand how this technology will impact the student's careers and the industry as a whole. Projects will include the operation and discussion of digital cameras, photo CDs, flatbed and slide scanners, Macintosh computers, b/w and color printers and film recorders. At least three different imaging software will be used and evaluated during the course. Prerequisites: VCOM1001. **Articulated**

VCOM1710 Reporting

2 c

Reporting is a course on the basics of writing and reporting for newspapers and magazines. Students will learn how to gather and organize the elements of a story using the inverted pyramid and Associated Press style. Grammar, caption writing, editing, layout, law and ethics will also be covered.

VCOM1720 Photojournalism

2 cr.

Photojournalism involves telling stories to a mass audience with the use of images. In this course students will be introduced to studio and location photography skills and related skills such as previsualization, use of traditional and digital cameras, cutline writing, layout, visual storytelling, Associated Press style, and business skills

VCOM1730 Advanced Photo Lighting Techniques 2 cr.

This course builds on the skills learned in Photo Lighting Techniques to increase the student's knowledge of on-location lighting techniques, advanced studio lighting, and use of multiple lighting sources. Students will use a hands-on approach to apply ambient and artificial lighting techniques to real-life situations in 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 cr.

Macro or close-up photography can be a difficult skill to master, even though it is used in many different areas of the photographic industry. Nature photography, medical and forensic photography, the copy and restoration industry, industrial and commercial 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, VCOM1515, or instructor approval.

VCOM2035 Layout II

3 cı

This course covers development of advanced page layout skills. It includes creating effective marketing pieces through the practical application of typography and composition. The use of visual concepts will be explored. Development and completion of a variety of assignments will place emphasis on visual communication methods including the use of hand tools and the computer as page layout implements. Prerequisites: VCOM1015.

VCOM2085 Drawing for Illustration

2 cı

In this course the students will study and apply methods in commercial illustration. Advanced drawing skills and techniques for illustration will be developed and various media uses will be explored. Students work to develop individual styles through advanced assignments. Prerequisites: VCOM1095.

VCOM2095 Painting for Illustration

2 cı

In this course the students will study and apply advanced methods in commercial illustration. Painting skills and techniques for illustration will be developed and various media uses will be explored. Students work to develop individual styles through advanced assignments. Prerequisites: VCOM1095.

VCOM2400 Advanced Photoshop

3 c

This course builds on the tools and techniques learned in VCOM 1010 (Intro PhotoShop). The student will use and become more proficient with all the tools used to modify photographs. Some of the special effects power of these software will be introduced during this class. Emphasis will be placed on using this software to produce commercially acceptable photographs and advertisements, as well as hard copy outputs. Prerequisites: VCOM1010.

VCOM2415 Advanced Electronic Publishing

3 cr.

Students will create electronic publishing projects using InDesign or QuarkXPress. Emphasis will be on advanced publishing techniques, use of color, color separations, and design of portfolio quality projects. Prerequisites: VCOM1400 and VCOM1430.

VCOM2420 Advanced Computer Illustration

cr.

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 cr.

Print Process II is a continuation of VCOM1422. Students will develop an understanding of the print process including: negative striping and proofing, color keys, job preflight, an overview of bindery and finishing operations (binding, folding, die cutting, foil stamping, etc.) and PDF workflow. Prerequisites: VCOM1422.

VCOM2423 Print Management

2 cr.

Students learn the customer service and sales side of the print industry. Topics include: job costing, estimating, customer service, print buying, print distribution(including postal regulations) Prerequisites: VCOM1422.

VCOM2510 Commercial Photography

2 cr.

In this course the student will learn how to use all the features of a large format, 4x5 view camera to produce commercial style images. By using special image distortion correction and depth of field controls, the student will setup and shoot many different types of images, such as still life, product, advertisement, and 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: VCOM1021, VCOM1515, VCOM1570.

VCOM2520 Digital Photography

2 cr.

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. Prerequisites: VCOM 1010, VCOM 1020 VCOM1515, and VCOM 1580.

VCOM2530 Advanced Photojournalism

2 cr.

Photography has been used in print publication for decades and will continue to be an integral part of print communication. In this course students will be introduced to advanced photojournalistic techniques and concepts linked with studio and location photography skills, editing skills, and related concepts dealing with previsualization, use of traditional and digital 35mm cameras, cut-line writing, layout, visual storytelling, copyright, libel, privacy, Associated Press Style, and business skills. Prerequisites: VCOM1021, VCOM1720 or instructor approval.

VCOM2540 The Business of Photography

2 cr.

Professional photographers who use the craft to pay their bills will tell you that the vast majority of their duties do not revolve around photography itself, but the many and varied activities that support the business of photography. This course, therefore, does not teach students photography per se. This course will teach students about the skills, tools, and resources necessary to succeed in business.

VCOM2551 Digital Studio Workflow 1

2 cr.

Digital photography is rapidly becoming the media of choice. 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 2

2 cr

This course enhances the skills and knowledge from VCOM2551 and takes workflow beyond capture, image management and output stages into the correction of difficult images and unusual situations. Advanced skills in Adobe Photoshop will be covered as the photographer learns how to solve technical issues and create unique products to help them succeed in the competitive workplace. Prerequisites: VCOM1006, VCOM1010, VCOM1021, VCOM1580, VCOM2520, VCOM2551.

VCOM2555 Alternative Light Sources

2 cr.

This technical and creative course will allow students to explore the use of alternative light sources used in scientific, artistic, and commercial photography. Background about color theory and spectral analysis will give a foundation for understanding the range of possibilities open to the photographer. Projects and assignments will range from color balance and color temperature to use of infrared and ultra violet light sources. Discussion will include the use of lasers, spectral microscopy, and infrared sensors used in photographic equipment today. Prerequisites: VCOM1021, VCOM1515 or instructor approval.

VCOM2560 Photography on the Internet

1 cr

This course will help the student understand the connection between photography and the Internet (World Wide Web). As photography changes with the proliferation of digital imaging, new marketing display methods introduced, different clients-bases are formed, and unique product delivery methods are being established. In this course, initially the student will explore and research the new photographic concepts born of the internet. Then the student will build an image based web site for display and marketing as well explore other options of getting their images to the client. Prerequisites: VCOM1001, VCOM1010, VCOM1021 and VCOM1580.

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, breakins, domestic abuse, personal injuries, homicides. Prerequisites: VCOM1021, VCOM1515.

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: VCOM1021, VCOM1515 or instructor approval.

VCOM2581 Photo Portfolio

2 cr.

This hands-on course will guide the student through the creation of a photography-based portfolio. Concepts in assemble techniques, display options and presentation methods will be at the heart of this course. Upon completion the student will have an industry-ready photographic portfolio in preparation for career exploration. Prerequisites: Should be taken during the last semester prior to graduation and concurrently with VCOM2000.

VCOM2582 Portfolio Development 2 cr. (Photographic Entrepreneur)

This class will concentrate on preparing the student to enter the photography job market. Students will be required to create a finished professional portfolio demonstrating their photographic skills. The portfolio will include examples of film and digital photography. Images for inclusion in the portfolio will be created using a variety of photographic formats, and techniques, and will emphasize the marketing and business plan developed for a start-up business. As a part of this course, students are required to participate in a formal portfolio showing near the end of their final semester of school. Prerequisites: ENTR1170, ENTR1440, ENTR1900, VCOM1010, VCOM1021, VCOM1515 VCOM1570, VCOM1580, VCOM2510, VCOM2100 - must be taken concurrently or instructor approval.

VCOM2584 Portfolio Development (Art Communications) 2 cr.

This course will concentrate on preparing the student to enter the photography job market. Students will be required to create a finished professional portfolio demonstrating their photographic skills. The portfolio will include examples of film and digital photography. Images for inclusion in the portfolio will be created using a variety of photographic formats, and techniques, but will emphasize photojournalism, and artistically styled images. As a part of this course, students are required to participate in a formal portfolio showing near the end of their final semester of school. Prerequisites: VCOM1010, VCOM1021, VCOM1030, VCOM1080, VCOM1400 or VCOM1440, VCOM1515, VCOM1570, VCOM1580, VCOM1720, VCOM2510, VCOM2000 - must be taken concurrently or instructor approval.

VCOM2586 Portfolio Development (Scientific Imaging) 2 cr.

This course will concentrate on preparing the student to enter the photography job market. Students will be required to create a finished professional portfolio demonstrating their photographic skills. The portfolio will include examples of film and digital photography. Images for inclusion in the portfolio will be created using a variety of photographic formats, and techniques, but will emphasize scientific imaging. As a part of this course, students are required to participate in a formal portfolio showing near the end of their final semester of school. Prerequisites: VCOM1010, VCOM1021, VCOM1515, VCOM1570, VCOM1580, VCOM1730, VCOM1740, VCOM2565, and VCOM2575. VCOM2000 - must be taken concurrently or instructor approval.

VCOM2605 Audio/Video for Presentations

3 cr.

This course introduces the student to the planning, designing and production of photo/video based presentations and audio. Students will learn how to develop timelines, narrative scripts and story boards. Students will become familiar with techniques of audio, video and still images creation, compression and formatting appropriate for use in interactive multimedia and linear presentation. Delivery and packaging of a variety of digital media will also be covered.

VCOM2650 Multimedia Project Management

This course is designed to introduce the student to the methods of design and construction of a multimedia production. Students will learn project management, client contact and presentation techniques. Students will learn to integrate information from a variety of resources into a multimedia production design. Teamwork and group participation in project development will be stressed. Prerequisites: VCOM1001 recommended.

VCOM2655 Intro to Director

3 cr.

2 cr.

This is an introductory course in the use of 3D modeling and animation software. Basic modeling techniques, use of animation software, basic animation and understanding the 3D process will be stressed. Students will create models that will be animated. Emphasis will be placed on movement, application of textures, lighting, camera movement, and project continuity. Projects will be exported in video format for use in multimedia and web page projects. Prerequisites: VCOM1001, VCOM1010 required, VCOM1410 recommended.

VCOM2660 3D Modeling and Animation

3 cr.

This course is designed to give the skills needed to make basic computer generated 3D models and animations for use in multimedia and web projects. Software will be used to create, animate and render 3-D models. Textures, color and lighting will be applied to wire frame models. Emphasis is placed on tool and menu use to create models and animations. Prerequisites: VCOM1001, VCOM1010 required, VCOM1410 recommended.

VCOM2670 Introduction to Authorware

2 cr.

This course is designed to give the student introductory experiences in Authorware Professional, Macromediais computer based training software. Students will concentrate on basic tool and menu operation, flow charting, storyboard development, and basic multimedia construction. Prerequisites: VCOM1001, VCOM1010 required, VCOM1410 recommended.

VCOM2680 Introduction to Flash

2 c

Students will use Macromedia object based 2D animation program to create animated segments for use in web pages. Timing, storyboarding, design and software tools will be emphasized. Prerequisites: VCOM1010, VCOM1410 recommended. **Articulated**

VCOM2685 Web Page Construction I

2 cr

This class will familiarize students with the concepts of web page design and construction. Emphasis will be on good design for both graphic elements and logical web page information flow. Prerequisites: VCOM1010 recommended and VCOM1410 required or instructor approval. **Articulated**

VCOM2690 Web Page Construction II

7 0

3 cr.

In this class students will become familiar with advanced web page design techniques. The emphasis will be on good design of both graphic elements and logical web page information flow. This advanced course will introduce students to a variety of web page construction software packages and tools. Additionally issues dealing with file transmission (audio, video, multimedia interaction) will be discussed. Prerequisites: VCOM2685.

VCOM2694 Advanced Multimedia Production

This course is project intensive. Students will use skills learned in Intro Director and/or Intro Authorware to create portfolio quality multimedia production. Emphasis will be placed on use of scripting language, logical information flow, story boarding, and quality graphic design. Prerequisites: VCOM1001, VCOM1010, VCOM1410, VCOM2655.

VCOM2700 Advanced Flash Animation

This course is designed to give students additional instruction and experience in Macromediaís Flash Animation software. This is a project driven course and students will work on a variety of presentations for delivery on the web. Emphasis will be placed on design and the use of scripting language to control Flash animations. Prerequisites: VCOM2680.

VCOM2721 Portfolio for Graphic Design 2 cr.

This class will concentrate on preparing the student to enter the multimedia, print industry and illustration job market. Students will be required to create a finished graphics portfolio in the area of their degree. Students will use skills learned in other software applications to refine and develop projects for use in their portfolio. Projects will be created using multimedia and web authoring programs. Projects for inclusion in the portfolio will be created in pixel based, object based, layout, web authoring and multimedia programs. Prerequisites: This course must be taken in conjunction with VCOM2730.

VCOM2722 Portfolio for Multimedia 2 cr. and Web Development

This class will concentrate on preparing the student to enter the multimedia, print industry and illustration job market. Students will be required to create a finished graphics portfolio in the area of their degree. Students will use skills learned in other software applications to refine and develop projects for use in their portfolio. Projects will be created using multimedia and web authoring programs. Projects for inclusion in the portfolio will be created in pixel based, object based, layout, web authoring and multimedia programs. Prerequisites: This course must be taken in conjunction with VCOM2730.

VCOM2724 Portfolio for Applied Visual Arts 2 cr.

This class will concentrate on preparing the student to enter the applied arts fields which may include multimedia, print industry and illustration job market. Students will use skills learned in art mediums and software applications to refine and develop projects for use in their portfolio. Projects for inclusion in the portfolio will include art mediums as well as in pixel based, object based, and layout applications. Prerequisites: This course must be taken in conjunction with VCOM2730.

VCOM2730 Career Research Skills

1 cr.

This class will concentrate on preparing the student to enter the Visual Communication's job market. Students will be required to create a cover letter, resume and finished mini-portfolio. Students will practice job interviewing skills and prepare to present their portfolios. This course should be taken the last semester of study and should be taken in conjunction with VCOM2724, Portfolio Development (Applied Visual Arts) or VCOM2721 Portfolio Development (Graphic Design) or VCOM2722 Portfolio Development (Multimedia/Web) Prerequisites: Senior level status.

VCOM2800 Advanced 3D Modeling and Animation 4 cr.

This is an advanced course in 3D modeling and animation. Students will create animations for use on the web and in multimedia productions. Emphasis will be placed on modeling and animating objects and test. Students will create animations from storyboards and will animate to prepared audio tracks. This course will focus on creating portfolio quality animations. Prerequisites: VCOM1001, VCOM1010, VCOM1410, VCOM2660.

VCOM2810 3D Modeling and Animation Capstone

5 cr.

2 cr.

Students will work on complex animation projects for multimedia and web display. Students will be expected to produce industrial quality animations using advanced modeling and animation techniques. Prerequisites: VCOM1001, VCOM1010, VCOM1410, VCOM2660, VCOM2800 required (with instructor approval may be taken concurrently with VCOM2800).

VCOM2820 Advanced Typography

Advanced Typography is a continuation of VCOM1415 Typography Fundamentals. Students will develop a greater understanding of type as a key element of design. The course will concentrate on designing with type, understanding the relationship between type families and type styles, selecting type for emotional impact, and using color and texture in type. Additional topics will include type and copyright requirements, computer type faces and type on the web. Prerequisites: VCOM1415.

WELDING TECHNOLOGY

WELD1010 Oxy Fuel and Stick Welding

2 cr.

This course covers the introduction to metals, shop safety, along with technique and theory of welding, brazing, cutting and heating. This course is also the basis for all electric welding processes and is strongly recommended before taking any electric welding process.

WELD1012 Mig and Tig Welding

2 cr.

This course covers welding techniques on carbon steel, aluminum, and stainless steel. Students will perform welding tasks on carbon steel, stainless steel and aluminum.

WELD1100 Welding Safety and Theory

2 cr.

This course covers the technical process of the welding trade. Included in the course studies are oxy-fuel welding and cutting processes, shielded metal arc welding, machine components, electrode classifications, polarities and functions. Also included will be safety regulations, habits and requirements of the welding trade.

WELD1102 Shielded Metal Arc Welding I

4 cr.

This course covers basic Shielded Metal Arc Welding (stick) using various electrodes and currents (polarities) in the flat position. Also emphasized are shop safety and shop ethics. Prerequisites: WELD1100 must be taken while taking WELD1102 or by permission of instructor. **Articulated**

WELD1104 Semi Automatic Arc Welding I

3 cr.

This course will teach the student to wire feed carbon steel in all positions, using dual-shield FC (flux cored) wire with CO@ shielding gases and self-shielded FC wire and submerged arc welding. Prerequisites: WELD1100.

WELD1106 Gas Tungsten Arc Welding I

3 cr.

This course is designed for hands on skills training using the Gas Tungsten Arc Welding (tig) process on a variety of metals including mild steel, stainless steel, and aluminum. Also included in the course are machine set-up, safety, and the oxy-fuel welding and cutting processes. Prerequisites: WELD1100 Welding Safety and Theory must be taken while taking WELD1106 or by permission of instructor. **Articulated**

WELD1108 Blueprint Reading

3 cr.

In this course the student will learn how to interpret weldment fabrication drawings and other types of engineering prints such as assembly, detail, machining and tooling prints.

WELD1110 Layout

3 cr.

This course is designed to introduce the student to the layout processes of transferring information from blueprints to a working layout. Prerequisites: WELD1108.

WELD1112 Welding Fabrication/Qualification

3 cr.

This course covers student fabrication experience on a working project. Also covered in this course is the weld certification under the AWS D1.1 code. The passing of this code test is required for a diploma. Prerequisites: WELD1102, WELD1104, WELD1108, WELD1114, and WELD1116.

WELD1114 Shielded Metal Arc Welding II

4 cr.

This course covers shielded metal arc welding and flux core arc welding out of position. Also presented will be welding qualification certification practices.

WELD1116 Semi Automatic Arc Welding II

2 cr.

This course covers the gas metal arc welding processes on mild steel, aluminum, and stainless steel. Also covered are the mig spray processes on aluminum, mild steel and stainless steel. Prerequisites: WELD1104 or instructor approval.

WELD1118 Gas Tungsten Arc Welding II

2 cr.

Using the oxy-acetylene GTAW processes, the student will learn to fusion weld various metals in the flat and vertical positions. Hands-on experience will be emphasized in shape cutting with electric eye machine.

WOOD FINISHING TECHNOLOGY

WOOD1004 Woodworking

3 сі

This course covers the safety and operation of woodshop handtools and power tools. Students will identify and create joinery used in furniture construction. An emphasis will be placed on the duplication of furniture parts and the repairing of existing furniture parts.

WOOD1007 Methods of Fastening

3 cı

This course covers the procedures and materials used in the disassembly and reassembly of furniture, cabinets, and other similar wooden objects. The study and application of metal fasteners, adhesives, and clamping procedures will be covered. Students will be required to work on several pieces of furniture. An introduction to the identification of period furniture and their components will be covered. Emphasis will be placed on the regluing of broken components of these same pieces. Prerequisites: WOOD1001 and WOOD1004.

WOOD1010 Wood and Finishing Technology

5 cr.

Understanding and application of the coloring agents and coatings for wood. This course also studies wood identification and wood as a material learning how it relates to abrasives, environmental fluctuation, coloring agents and coatings. This course is important to those who want to be able to problem solve wood and finishing defects.

WOOD1012 Color Theory

3 cr

This course covers the application of stains and dyes necessary for creating and duplicating colors on wood. Students will be required to match several color samples on wood. The study of color and its relationship to light will also be covered.

WOOD1015 Spot Repair I

3 cr.

This course covers the basic techniques used for furniture spot repair. Students learn basic color theory and the repairing of small nicks, dents, and scratches in wood. Prerequisites: WOOD1012 is suggested.

WOOD1019 Advanced Spot Repair

5 cr.

This course covers advanced techniques used for spot repair. Larger and more difficult repairs will be worked on as performed in WOOD1015. Polyester fills, leather repair, vinyl repair, toners, blockouts, and other types of materials will be used to make cosmetic repairs. Prerequisites: WOOD1015.

WOOD1021 Wood Refinishing

6 cr.

This class covers the total removal and replacement of the existing coating and color on wooden furniture. Surface preparation, including hand stripping, emersion systems, and bleaches, will be covered. Students in this class will be required to refinish several pieces of furniture. Emphasis will be placed on the safety and terminology of finishing procedures and finishing schedules used. Also emphasized is the understanding of how to give a customer a bid for these services. Prerequisites: WOOD1004, WOOD1017, WOOD1019, WOOD1019, WOOD1019, MOOD1019.

WOOD1026 Advanced Finishing Techniques

5 cr.

This course covers advanced wood finishing techniques on new wood products and advanced wood restoration techniques. New wood product techniques involve spraying dyes, mixing color into the finish, production spray systems, using industrial coatings including transparent and opaque coatings, using power sanders throughout the finishing schedule and evaluating coating performance. Restoration techniques include hand caning, rushing, advanced color matching techniques, advanced restoration techniques, with an emphasis on problem solving finishing defects. Prerequisites: WOOD1004, WOOD1007, WOOD1010, WOOD1012, WOOD1015, WOOD1019, and WOOD1021.

WOOD1032 Antique Furniture Conservation

3 cr.

This course covers conservation techniques used on fine wooden antiques and their attachments in order to maintain their value. Preserving the existing finish, solvent cleaning, french polishing, consolidating techniques and plastic mold duplicating will be covered. Prerequisites: All previous WOOD courses.

ADMISSIONS

651-423-8000 | admissions@dctc.edu

TUITION

651-423-8045 | tuition@dctc.edu

REGISTRATION

651-423-8038 | registration@dctc.edu

FINANCIAL AID / SCHOLARSHIPS

651-423-8299 | finaid@dctc.edu

MAP LEGEND



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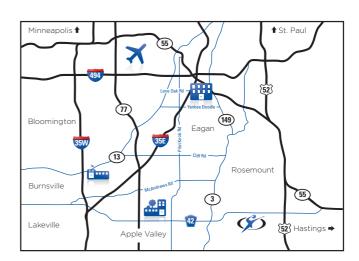
Partners in Higher Education 14200 Cedar Avenue Apple Valley, MN 55124 651-423-8600



IT Training Center 3140 Neil Armstrong Boulevard Eagan, MN 55121 651-406-4754



Diamondhead Education Center 200 West Burnsville Parkway #100 Burnsville, MN 55337



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Harassment of an individual or group on the basis of race, sex, color, creed, religion, age, national origin, disability, marital status, status with regard to public assistance, sexual orientation, or membership or activity in a local commission has no place in a learning or work environment and is prohibited. Sexual violence has no place in a learning or work environment. Further, Dakota County Technical College shall work to eliminate violence in all its forms. Physical contact by designated college staff members may be appropriate if necessary to avoid physical harm to persons or property.

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