

2009 | 2010  
CATALOG



DAKOTA COUNTY  
TECHNICAL COLLEGE

[make it happen]

# WELCOME



**On behalf of our administrators, staff and faculty, I would like to welcome you to Dakota County Technical College.**

DCTC is a two-year, technical college that belongs to the Minnesota State Colleges & Universities system. Our main campus is located in Rosemount, Minn., with additional sites in Apple Valley and Eagan.

We take pride in our ability to deliver unique, relevant and effective programs to students from diverse backgrounds. Our instructors have the industry know-how to teach the technology that gives our students the tools to "Make It Happen" in an intensely competitive global marketplace.

Because we stress the importance of real-world experience in our classrooms and labs through service-learning, internships and paid employment, our graduates are superbly equipped to plunge into the workforce and start building dream careers.

In line with a renewed focus on the environment, DCTC instituted our Green Campus Commitment as the means to promote Earth-friendly sustainability principles at all levels of the college.

Along with a wide range of clubs and organizations, including Phi Theta Kappa and the Student Senate, the college offers competitive varsity athletics, including women's fastpitch softball, men's baseball, and women and men's soccer.

Whether you're looking to earn a degree, change careers, power up your résumé, enhance your skill set or transfer to a four-year institution, DCTC has everything you need to make it happen.

For more information, please visit our Web site, [www.dctc.edu](http://www.dctc.edu), or drop in for a Tuesday Campus Visit on any Tuesday at 12:45 p.m. (no reservation necessary), or schedule a personal appointment with an academic advisor.

**Best wishes for your future!**

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



[make it happen]



## **MISSION**

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

## **VISION**

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

## **PHILOSOPHY**

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

## TABLE OF CONTENTS

Understanding this Guide.....	1
Accreditation .....	1

### **General Information .....1-6**

Admissions .....	1
Registration .....	3
Tuition and Fees .....	4
Financial Aid and Scholarships.....	4
College Services.....	5
Student Life .....	6

### **Business and Information Systems .....7-8**

Accounting .....	9
Information Systems.....	11-16
- Information Systems Management .....	11
- Networking Administration.....	13
- Software Development .....	15
Office Careers.....	17-24
- Executive and Administrative Assistant.....	17
- Legal Administrative Assistant.....	19
- Medical Administrative Assistant.....	21
- Medical Coding Specialist .....	23
- Medical Transcriptionist.....	24

### **Business and Management.....25-26**

Business.....	27
Business Entrepreneur.....	29
Individualized Studies .....	30
Industrial Distribution.....	31
Management for Airline Professionals .....	32
Management for Technical Professionals .....	33
Marketing and Sales .....	34
Meeting and Event Management.....	38
Multicultural Management .....	40
Real Estate Property Management .....	42
Supervisory Management.....	44

### **Design .....47-48**

Architectural Technology .....	50
Interior Design .....	52
Landscape Horticulture .....	54
Visual Communications.....	56-66
- Applied Visual Arts .....	56
- Electronic Publishing .....	58
- Graphic Design Technology.....	60
- Multimedia/Web Page Design.....	62
- Photographic Imaging Technology.....	63
- Photography .....	66
Wood Finishing.....	67

### **Health and Human Services .....69-70**

Child Development .....	71
Dental Assistant .....	74
Exercise and Sport Science.....	76
Medical Assistant .....	80
Nursing Assistant .....	82
Practical Nursing .....	83

### **Technical Careers .....85-86**

Audio Visual Installation Technology.....	87
Biomedical Equipment Technology .....	88
Civil Engineering Technology .....	90
Concrete and Masonry.....	91
Electrical Construction and Maintenance.....	93
Electrical Lineworker.....	95
Nanoscience Technology .....	97
Welding Technology .....	98

### **Transportation.....99-100**

Auto Body Collision Technology.....	101
Automotive Technician.....	104
GM Automotive Service Program.....	107
Heavy Construction Equipment Technology .....	108
Heavy Duty Truck Technology .....	110
Railroad Conductor Technology.....	112

### **General Education .....113-118**

### **Course Descriptions .....119-158**

## 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 sample shown is only one of many sequence options. You should meet with an instructor or academic advisor to develop a sequence that fits your schedule and meets your educational goals. For the most up-to-date information, visit [www.dctc.edu](http://www.dctc.edu).

## ACCREDITATION

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

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

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

All students pursuing a degree, diploma, or certificate **must** complete the following admissions requirements:

#### 1. Submit a DCTC Application

Available in this catalog, at DCTC, or online at:  
<http://dctc.edu/go/onlineapp>

#### 2. Pay a \$20 non-refundable application fee

Online payment is accepted with a credit card at:  
<http://dctc.edu/go/admissions>

#### 3. Complete the ACCUPLACER Placement Test

For a testing schedule, call 651-423-8000 or visit:  
<http://dctc.edu/go/accuplacer>

#### 4. Complete an immunization form

Available at DCTC or online at:  
<http://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 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](mailto: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 which are in effect when returning to DCTC. Contact Admissions for more information.

### International Student Admission

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

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

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

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

### 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, 76 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 one. DCTC applications for PSEO students are available at DCTC or online at: <http://www.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 Schmidt at 651-423-8298 or e-mail: [admissions@dctc.edu](mailto: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 [www.dctc.edu/go/accuplacer](http://www.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 for 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 to 64 semester credits. At least 30 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 50% of the total 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. At least 30 semester credits shall be program-related occupation or technical credits.

**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](mailto: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 Course Advising and Registration Session (CARS). 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 <http://www.dctc.edu/go/paytuition>. Those interested in setting up a payment plan should contact the Tuition Office by e-mail: [tuition@dctc.edu](mailto:tuition@dctc.edu) or phone: 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 <http://www.dctc.edu/go/part-time> for additional details.

### Change of Registration (Drop, Add, Withdrawal)

Students 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: <http://www.dctc.edu/go/transferout>.

## TUITION AND FEES

651-423-8045 | [tuition@dctc.edu](mailto: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 2008-2009 school year were \$163.64 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 AND SCHOLARSHIPS

651-423-8299 | [finaid@dctc.edu](mailto:finaid@dctc.edu)

Student financial aid is monetary assistance made available to students who qualify. Approximately 80% 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 <http://www.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 <http://www.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 <http://www.dctc.edu/future-students/pay-for-college/loans.cfm>. Additionally, students must complete an exit counseling session before leaving DCTC.

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

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

## Other Funding Sources

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

Students may purchase books and supplies in the DCTC Bookstore and online. Visit the bookstore web site at <http://www.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: <http://www.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: <http://www.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 is 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: <http://www.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: <http://www.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: <http://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: <http://www.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 <http://www.dctc.edu/go/trio> or stop by Room 2-141.

# STUDENT LIFE

651-423-8330 | [studentlife@dctc.edu](mailto: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](mailto: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: <http://www.dctc.edu/go/alumni>.

## Student Senate

651-423-8330 | [stusenate@dctc.edu](mailto: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.

## Blue Knights Athletics

651-423-8330 | [athletics@dctc.edu](mailto: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 (ICCC) Division I. The college has varsity teams in men's soccer, women's soccer, 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
- Automotive Club
- Chess Club
- Coral Reef Ecology Club
- Landscape Horticulture Club

For more information or to start your own club, visit <http://www.dctc.edu/go/clubs>.

## Wellness Center

651-423-8330 | [wellness.center@dctc.edu](mailto:wellness.center@dctc.edu)

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

## Veterans Resource Center

651-423-8627 | [veterans@dctc.edu](mailto: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 AND INFORMATION SYSTEMS



## PROGRAMS OF STUDY

<b>Accounting</b>	<b>9</b>
<b>Information Systems</b>	<b>11-16</b>
- Information Systems Management	11
- Networking Administration	13
- Software Development	15
<b>Office Careers</b>	<b>17-24</b>
- Executive and Administrative Assistant	17
- Legal Administrative Assistant	19
- Medical Administrative Assistant	21
- Medical Coding Specialist	23
- Medical Transcriptionist	24

## 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



Daytime Programs



Evening Programs



Online Programs

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

## FACULTY

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### Leo Chambers, CPA

#### Accounting

*B.A., Mankato State University*

*M.B.A., Mankato State University*

651-423-8390 | [leo.chambers@dctc.edu](mailto:leo.chambers@dctc.edu)

### Lawrence Dunn

#### Information Systems

*BA, University of Minnesota*

*MS, University of Minnesota*

*PhD, University of Minnesota*

651-423-8616 | [lawrence.dunn@dctc.edu](mailto:lawrence.dunn@dctc.edu)

### Darryl Erickson

#### Information Systems

*B.A., St. Cloud State University*

651-423-8338 | [darryl.erickson@dctc.edu](mailto:darryl.erickson@dctc.edu)

### Susan Johanson

#### Office Careers

*B.S., University of Minnesota*

*M.A., Saint Mary's University*

651-423-8239 | [susan.johanson@dctc.edu](mailto:susan.johanson@dctc.edu)

### Charlotte Kodner

#### Office Careers

*B.A., University of Wisconsin, Eau Claire*

*M.Ed., University of Minnesota*

651-423-8428 | [charlotte.kodner@dctc.edu](mailto:charlotte.kodner@dctc.edu)

### Betty Krueger

#### Information Systems

*B.S., Iowa State University*

*M.E., The College of St. Scholastica*

651-423-8560 | [betty.krueger@dctc.edu](mailto:betty.krueger@dctc.edu)

### Doris Loes, CPA

#### Accounting

*B.A., Metro State University*

*M.B.A., University of St. Thomas*

651-423-8497 | [doris.loes@dctc.edu](mailto:doris.loes@dctc.edu)

### Judith Reese

#### Office Careers

*B.S., University of Minnesota*

*M.A., University of Minnesota*

651-423-8389 | [judith.reese@dctc.edu](mailto:judith.reese@dctc.edu)

### Judy Suddendorf

#### Information Systems

*B.A., University of Northern Iowa*

*M.A.E., University of Northern Iowa*

651-423-8385 | [judy.suddendorf@dctc.edu](mailto:judy.suddendorf@dctc.edu)

### Thomas Wood, CLU

#### Accounting

*B.A., University of Minnesota*

*M.Ed., University of Minnesota*

651-423-8391 | [thomas.wood@dctc.edu](mailto:thomas.wood@dctc.edu)

## ADVISOR

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### Patty Allen

*B.A., College of St. Benedict*

651-423-8281 | [patty.allen@dctc.edu](mailto:patty.allen@dctc.edu)

## DEAN

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### Gary Hebert

*B.A., University of Wisconsin, Eau Claire*

*M.S., University of Wisconsin, Stout*

651-423-8307 | [gary.hebert@dctc.edu](mailto:gary.hebert@dctc.edu)

*"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

Location: Rosemount Campus

Start: Fall or Spring Semester, Full- or Part-Time

## 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: \$30.97
- Top Earners: \$46.23



## ACCOUNTANT – A.A.S. DEGREE

### Fall Semester - First Year

Course#	Course Title	Credits
ACCT1000	Principles of Accounting I	4
ACCT1100	Business Law and Ethics	3
ACCT1106	Accounting Mathematics	3
COML1400	Introduction to Computers	3
	General Education Elective**	4
<b>Total Credits</b>		<b>17</b>

### Spring Semester - First Year

Course#	Course Title	Credits
ACCT1003	Principles of Accounting II	4
ACCT1226	Payroll Accounting	3
ACCT1306	Spreadsheets	3
ACCT1406	Income Tax	4
	Technical Elective*	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>20</b>

### Fall Semester - Second Year

Course#	Course Title	Credits
ACCT2000	Intermediate Accounting I	4
ACCT2100	Cost Accounting I	4
ACCT2200	Accounting Computer Applications I	3
ENGL1100	Writing and Research Skills	3
	General Education Elective**	3
<b>Total Credits</b>		<b>17</b>

### Spring Semester - Second Year

Course#	Course Title	Credits
ACCT2003	Intermediate Accounting II	4
ACCT2103	Cost Accounting II	4
ACCT2203	Accounting Computer Applications II	3
ACCT2306	Auditing	3
	General Education Elective (MnTC Goal 3 or 4)**	4
<b>Total Credits</b>		<b>18</b>

### 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  
course subject areas ACCT, ISTC or OFFC.*

*\*\* Select General Education electives from any MnTC goal area.  
See pages 116-118 for MnTC goal areas.*

**ACCOUNTANT – DIPLOMA****Fall Semester - First Year**

Course#	Course Title	Credits
ACCT1000	Principles of Accounting I	4
ACCT1100	Business Law and Ethics	3
ACCT1106	Accounting Mathematics	3
	Technical Elective*	2
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>15</b>

**Spring Semester - First Year**

Course#	Course Title	Credits
ACCT1003	Principles of Accounting II	4
ACCT1226	Payroll Accounting	3
ACCT1306	Spreadsheets	3
ACCT1406	Income Tax	4
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>17</b>

**Fall Semester - Second Year**

Course#	Course Title	Credits
ACCT2000	Intermediate Accounting I	4
ACCT2100	Cost Accounting I	4
ACCT2200	Accounting Computer Applications I	3
	Technical Elective*	2
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>16</b>

**Spring Semester - Second Year**

Course#	Course Title	Credits
ACCT2003	Intermediate Accounting II	4
ACCT2103	Cost Accounting II	4
ACCT2203	Accounting Computer Applications II	3
ACCT2306	Auditing	3
	Technical Elective*	2
<b>Total Credits</b>		<b>16</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>64</b>
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*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  
course subject areas ACCT, ISTC or OFFC.*

**ACCOUNTING CLERK – DIPLOMA****Fall Semester - First Year**

Course#	Course Title	Credits
ACCT1000	Principles of Accounting I	4
ACCT1100	Business Law and Ethics	3
ACCT1106	Accounting Mathematics	3
COML1400	Introduction to Computers	3
	Technical Elective*	2
<b>Total Credits</b>		<b>15</b>

**Spring Semester - First Year**

Course#	Course Title	Credits
ACCT1003	Principles of Accounting II	4
ACCT1226	Payroll Accounting	3
ACCT1306	Spreadsheets	3
ACCT1406	Income Tax	4
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>17</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>32</b>
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*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  
course subject areas ACCT, ISTC or OFFC.*

# INFORMATION SYSTEMS MANAGEMENT

Location: Rosemount Campus

Start: Fall or Spring Semester, Full- or Part-Time

## 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

- Chief Information Officer
- Chief Technology Officer
- Data Center Manager
- Director of Information Technology
- Technical Services Manager
- Technology Coordinator

## Salary Data

- Average Wage: \$58.33/hour
- Top Earners: >\$70/hour



## INFORMATION SYSTEMS MANAGEMENT – A.A.S. DEGREE

### Fall Semester – First Year

Course#	Course Title	Credits
ISTC1100	Business Communications	3
ISTC1030	Operating Systems I	3
ISTC1040	Network Systems I	3
COML1400	Introduction to Computers	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>15</b>

### Spring Semester – First Year

Course#	Course Title	Credits
ISTC1000	Introduction to Information Systems Management	3
ISTC1010	Microcomputer Maintenance	3
ISTC1033	Operating Systems II	3
ISTC1050	Database Systems	3
ISTC1060	Security I	3
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>18</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
ISTC1300	Introduction to Programming	3
ISTC1400	Wireless Systems	3
ISTC2035	Operating System III	3
ISTC2040	Database Management	3
General Education Elective (MnTC Goal 3 or 4)**		6
<b>Total Credits</b>		<b>18</b>

### Spring Semester – Second Year

Course#	Course Title	Credits
ISTC1230	System Analysis and Design	3
ISTC2065	Security II: Firewalls	3
ISTC2100	Project Management	3
ISTC2120	Financial Accounting for Information Systems	3
ISTC2140	Digital Convergence	3
General Education Electives**		5
<b>Total Credits</b>		<b>20</b>

### 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 116-118 for MnTC goal areas.*

**INFORMATION SYSTEMS MANAGEMENT – DIPLOMA****Fall Semester – First Year**

Course#	Course Title	Credits
ISTC1100	Business Communications	3
ISTC1030	Operating Systems I	3
ISTC1040	Network Systems I	3
COML1400	Introduction to Computers	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>15</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
ISTC1000	Introduction to Information Systems Management.	3
ISTC1010	Microcomputer Maintenance	3
ISTC1033	Operating Systems II	3
ISTC1050	Database Systems	3
ISTC1060	Security I	3
<b>Total Credits</b>		<b>15</b>

**Fall Semester – Second Year**

Course#	Course Title	Credits
ISTC1300	Introduction to Programming	3
ISTC1400	Wireless Systems	3
ISTC2035	Operating System III	3
ISTC2040	Database Management	3
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>15</b>

**Spring Semester – Second Year**

Course#	Course Title	Credits
ISTC1230	System Analysis and Design	3
ISTC2065	Security II: Firewalls	3
ISTC2100	Project Management	3
ISTC2120	Financial Accounting for Information Systems	3
ISTC2140	Digital Convergence	3
<b>Total Credits</b>		<b>15</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>60</b>
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*This is a sample course sequence resulting in a diploma.  
Please consult your program advisor regarding your academic plans.*

# NETWORKING ADMINISTRATION

Location: Rosemount Campus

Start: Fall or Spring Semester, Full- or Part-Time

## 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: \$35.54/hour
- Top Earners: \$50.07/hour



## NETWORKING ADMINISTRATION – A.A.S. DEGREE

### Fall Semester – First Year

Course#	Course Title	Credits
ISTC1100	Business Communications	3
ISTC1030	Operating Systems I	3
ISTC1040	Network Systems I	3
COML1400	Introduction to Computers	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>15</b>

### Spring Semester – First Year

Course#	Course Title	Credits
ISTC1010	Microcomputer Maintenance	3
ISTC1033	Operating Systems II	3
ISTC1050	Database Systems	3
ISTC1400	Wireless Systems	3
ISTC2005	Network Systems II	3
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>18</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
ISTC1060	Security I	3
ISTC2010	Network Systems III	3
ISTC2035	Operating System III	3
ISTC2040	Database Management	3
	General Education Electives**	7
<b>Total Credits</b>		<b>19</b>

### Spring Semester – Second Year

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

### 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 116-118 for MnTC goal areas.*

**NETWORKING ADMINISTRATION – DIPLOMA****Fall Semester – First Year**

Course#	Course Title	Credits
ISTC1100	Business Communications	3
ISTC1030	Operating Systems I	3
ISTC1040	Network Systems I	3
COML1400	Introduction to Computers	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>15</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
ISTC1010	Microcomputer Maintenance	3
ISTC1033	Operating Systems II	3
ISTC1050	Database Systems	3
ISTC1400	Wireless Systems	3
ISTC2005	Network Systems II	3
<b>Total Credits</b>		<b>15</b>

**Fall Semester – Second Year**

Course#	Course Title	Credits
ENGL1100	Writing and Research Skills	3
ISTC1060	Security I	3
ISTC2010	Network Systems III	3
ISTC2035	Operating System III	3
ISTC2040	Database Management	3
<b>Total Credits</b>		<b>15</b>

**Spring Semester – Second Year**

Course#	Course Title	Credits
ISTC2015	Network Systems IV	3
ISTC2065	Security II: Firewalls	3
ISTC2070	Security III: Forensics	3
ISTC2100	Project Management	3
ISTC2140	Digital Convergence	3
<b>Total Credits</b>		<b>15</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>60</b>
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*This is a sample course sequence resulting in a diploma.  
Please consult your program advisor regarding your academic plans.*

**PC TECHNICIAN – CERTIFICATE****Fall Semester – First Year**

Course#	Course Title	Credits
ISTC1100	Business Communications	3
ISTC1030	Operating Systems I	3
ISTC1040	Network Systems I	3
SPEE1020	Interpersonal Communication	3
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>15</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
ISTC1010	Microcomputer Maintenance	3
ISTC1033	Operating Systems II	3
ISTC1050	Database Systems	3
ISTC1060	Security I	3
ISTC1400	Wireless Systems	3
<b>Total Credits</b>		<b>15</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>30</b>
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*This is a sample course sequence resulting in a certificate.  
Please consult your program advisor regarding your academic plans.*

# SOFTWARE DEVELOPMENT

Location: Rosemount Campus

Start: Fall or Spring Semester, Full- or Part-Time

## 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: \$41.64/hour
- Top Earners: \$58.20/hour



## SOFTWARE DEVELOPMENT – A.A.S. DEGREE

### Fall Semester – First Year

Course#	Course Title	Credits
ISTC1100	Business Communications	3
ISTC1030	Operating Systems I	3
ISTC1040	Network Systems I	3
ISTC1300	Introduction to Programming	3
COML1400	Introduction to Computers	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>18</b>

### Spring Semester – First Year

Course#	Course Title	Credits
ISTC1010	Microcomputer Maintenance	3
ISTC1033	Operating Systems II	3
ISTC1050	Database Systems	3
ISTC1060	Security I	3
ISTC1205	Web Client Programming	3
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>18</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
ISTC1210	Web Server Programming	3
ISTC1230	System Analysis and Design	3
ISTC2310	Java I	3
ISTC2320	.NET I	3
	General Education Electives**	7
<b>Total Credits</b>		<b>19</b>

### Spring Semester – Second Year

Course#	Course Title	Credits
ISTC2050	Data Structures	3
ISTC2100	Project Management	3
ISTC2315	Java II	3
ISTC2325	.NET II	3
	General Education Elective (MnTC Goal 3 or 4)**	4
<b>Total Credits</b>		<b>16</b>

### 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 116-118 for MnTC goal areas.*

**SOFTWARE DEVELOPMENT – DIPLOMA****Fall Semester – First Year**

Course#	Course Title	Credits
ISTC1100	Business Communications	3
ISTC1030	Operating Systems I	3
ISTC1040	Network Systems I	3
ISTC1300	Introduction to Programming	3
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>15</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
ISTC1010	Microcomputer Maintenance	3
ISTC1033	Operating Systems II	3
ISTC1050	Database Systems	3
ISTC1060	Security I	3
ISTC1205	Web Client Programming	3
<b>Total Credits</b>		<b>15</b>

**Fall Semester – Second Year**

Course#	Course Title	Credits
ISTC1210	Web Server Programming	3
ISTC1230	System Analysis and Design	3
ISTC2310	Java I	3
ISTC2320	.NET I	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>15</b>

**Spring Semester – Second Year**

Course#	Course Title	Credits
ISTC2050	Data Structures	3
ISTC2100	Project Management	3
ISTC2315	Java II	3
ISTC2325	.NET II	3
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>15</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>60</b>
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*This is a sample course sequence resulting in a diploma.  
Please consult your program advisor regarding your academic plans.*

**WEB DEVELOPER – DIPLOMA****Fall Semester – First Year**

Course#	Course Title	Credits
ISTC1100	Business Communications	3
ISTC1030	Operating Systems I	3
ISTC1300	Introduction to Programming	3
VCOM1032	Interactive Design Fundamentals	2
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>14</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
ISTC1050	Database Systems	3
ISTC1060	Security I	3
ISTC1205	Web Client Programming	3
ISTC1210	Web Server Programming	3
ISTC2320	.NET I	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>18</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>32</b>
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*This is a sample course sequence resulting in a diploma.  
Please consult your program advisor regarding your academic plans.*

# EXECUTIVE AND ADMINISTRATIVE ASSISTANT

Location: Rosemount Campus

Start: Fall or Spring Semester, Full- or Part-Time

## Major Description

**Executive Assistant:** This program teaches the expertise needed for creating and editing documents, spreadsheets, databases, electronic presentations, Internet navigation, working with local area networks and designing Web pages. 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

### Executive Assistant

- Average Wage: \$21.31/hour
- Top Earners: \$28.28/hour

### Administrative Assistant

- Average Wage: \$14.59/hour
- Top Earners: \$19.85/hour



## EXECUTIVE ASSISTANT – A.A.S. DEGREE

### Fall Semester – First Year

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

### Spring Semester – First Year

Course#	Course Title	Credits
OFFC1017	Technology for the Business Professional	3
OFFC1230	MS Publisher	2
OFFC1260	Certification Basics – Word	3
OFFC1275	Certification Basics – PowerPoint	3
OFFC1285	Oral Business Communication/Job Seeking Skills	2
OFFC1290	Written Business Communications	2
<b>Total Credits</b>		<b>15</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
	Technical Electives*	9
SPEE1020	Interpersonal Communication	3
	General Education Elective (MnTC Goal 3 or 4)**	4
<b>Total Credits</b>		<b>16</b>

### Spring Semester – Second Year

Course#	Course Title	Credits
OFFC1040	Integrated Office Skills	3
	Technical Elective*	3
ENGL1100	Writing and Research Skills	3
	General Education Electives**	7
<b>Total Credits</b>		<b>16</b>

**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 – Students may select courses from subject areas OFFC, ISTC, ENTR or SMGT; OFFC1265 (Certification Basics – Excel) is recommended.

\*\* Select General Education electives from any MnTC goal area.  
See pages 116-118 for MnTC goal areas.

**ADMINISTRATIVE ASSISTANT – DIPLOMA****Fall Semester – First Year**

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

**Spring Semester – First Year**

Course#	Course Title	Credits
OFFC1017	Technology for the Business Professional	3
OFFC1040	Integrated Office Skills	3
OFFC1230	MS Publisher	2
OFFC1260	Certification Basics – Word	3
OFFC1275	Certification Basics – PowerPoint	3
OFFC1285	Oral Business Communication./Job Seeking Skills	2
OFFC1290	Written Business Communications	2
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>21</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>38</b>
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*This is a sample course sequence resulting in a diploma.  
Please consult your program advisor regarding your academic plans.*

**RECEPTIONIST – CERTIFICATE****Fall Semester – First Year**

Course#	Course Title	Credits
OFFC1000	Basic Keyboarding	1
OFFC1010	Business English Skills	2
OFFC1019	Receptionist Skills	2
OFFC1020	Office Procedure	4
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>12</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
OFFC1030	Word Processing	3
OFFC1285	Oral Business Communication/Job Seeking Skills	2
OFFC1290	Written Business Communications	2
	Technical Electives*	6
<b>Total Credits</b>		<b>13</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>25</b>
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*This is a sample course sequence resulting in a certificate.  
Please consult your program advisor regarding your academic plans.*

*\* Technical Electives – Students may select courses  
from subject areas OFFC, ISTD, ENTR or SMTT*

# LEGAL ADMINISTRATIVE ASSISTANT

Location: Rosemount Campus

Start: Fall or Spring Semester, Full- or Part-Time

## 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: \$23.68/hour
- Top Earners: \$30.36/hour



## LEGAL ADMINISTRATIVE ASSISTANT – A.A.S. DEGREE

### Fall Semester – First Year

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

### Spring Semester – First Year

Course#	Course Title	Credits
OFFC1017	Technology for the Business Professional	3
OFFC1030	Word Processing	3
OFFC1040	Integrated Office Skills	3
OFFC1275	Certification Basics – PowerPoint	3
OFFC1290	Written Business Communications	2
OTEC1730†	Civil Procedures	3
<b>Total Credits</b>		<b>17</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
OFFC1260	Certification Basics – Word	3
OTEC2735†	Family Law/Criminal Law	3
ENGL1100	Writing and Research Skills	3
PHIL1100	Ethics	3
	General Education Elective**	4
<b>Total Credits</b>		<b>16</b>

### Spring Semester – Second Year

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

### 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.*

*† Courses offered online from South Central College-Mankato.*

*\* Technical Electives – Students may select courses from subject areas OFFC, ISTC, ENTR or SMTG.*

*\*\* Select General Education electives from any MnTC goal area. See pages 116-118 for MnTC goal areas.*

**LEGAL ADMINISTRATIVE ASSISTANT – DIPLOMA****Fall Semester – First Year**

Course#	Course Title	Credits
OFFC1005	Keyboarding/Formatting	3
OFFC1010	Business English Skills	2
OFFC1019	Receptionist Skills	2
OFFC1020	Office Procedures	4
OFFC1030	Word Processing	3
OTEC1725†	Transactional Law	3
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>20</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
OFFC1040	Integrated Office Skills	3
OFFC1260	Certification Basics – Word	3
OFFC1275	Certification Basics – PowerPoint	3
OFFC1285	Oral Business Communication./Job Seeking Skills	2
OFFC1290	Written Business Communications	2
OTEC1730	Civil Procedures	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>19</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>39</b>
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*This is a sample course sequence resulting in a diploma.  
Please consult your program advisor regarding your academic plans.*

*† Courses offered online from South Central College-Mankato.*

**LEGAL RECEPTIONIST – CERTIFICATE****Fall Semester – First Year**

Course#	Course Title	Credits
OFFC1000	Basic Keyboarding	1
OFFC1010	Business English Skills	2
OFFC1019	Receptionist Skills	2
OFFC1020	Office Procedures	4
OTEC1725†	Transactional Law	3
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>15</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
OFFC1030	Word Processing	3
OFFC1285	Oral Business Communication./Job Seeking Skills	2
OFFC1290	Written Business Communications	2
	Technical Elective*	3
<b>Total Credits</b>		<b>10</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>25</b>
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*This is a sample course sequence resulting in a certificate.  
Please consult your program advisor regarding your academic plans.*

*† Courses offered online from South Central College-Mankato.*

*\* Technical Electives – Students may select courses  
from subject areas OFFC, ISTC, ENTR or SMGT.*

# MEDICAL ADMINISTRATIVE ASSISTANT

Location: Rosemount Campus

Start: Fall or Spring Semester, Full- or Part-Time

## Major Description

This program prepares students to work in a variety of fields related to medicine. 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 medical fields. 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/hour
- Top Earners: \$21.56/hour



## MEDICAL ADMINISTRATIVE ASSISTANT – A.A.S. DEGREE

### Fall Semester – First Year

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

### Spring Semester – First Year

Course#	Course Title	Credits
OFFC1030	Word Processing	3
OFFC1052	Medical Transcription I	2
OFFC1053	Medical Transcription II	2
OFFC1054	Speech Recognition Transcription	2
OFFC1285	Oral Business Communication/Job Seeking Skills	2
OFFC1290	Written Business Communications	2
HEAL1101	Anatomy and Physiology	4
<b>Total Credits</b>		<b>17</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
OFFC1260	Certification Basics – Word	3
ENGL1100	Writing and Research Skills	3
PSYC1100	General Psychology	3
SPEE1020	Interpersonal Communication	3
	General Education Elective**	4
<b>Total Credits</b>		<b>16</b>

### Spring Semester – Second Year

Course#	Course Title	Credits
OFFC1017	Technology for the Business Professional	3
OFFC1040	Integrated Office Skills	3
OFFC1275	Certification Basics – PowerPoint	3
	Technical Elective*	2
	General Education Elective (MnTC Goal 3 or 4)**	4
<b>Total Credits</b>		<b>15</b>

**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 course subject areas OFFC or ISTC.

\*\* Select General Education electives from any MnTC goal area.  
See pages 116-118 for MnTC goal areas.

**MEDICAL ADMINISTRATIVE ASSISTANT – DIPLOMA****Fall Semester – First Year**

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

**Spring Semester – First Year**

Course#	Course Title	Credits
OFFC1017	Technology for Business Professionals	3
OFFC1040	Integrated Office Skills	3
OFFC1260	Certification Basics – Word	3
OFFC1285	Oral Business Communication/Job Seeking Skills	2
OFFC1290	Written Business Communications	2
HEAL1101	Anatomy and Physiology	4
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>20</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>39</b>
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*This is a sample course sequence resulting in a diploma.  
Please consult your program advisor regarding your academic plans.*

**MEDICAL RECEPTIONIST – CERTIFICATE****Fall Semester – First Year**

Course#	Course Title	Credits
OFFC1000	Basic Keyboarding	1
OFFC1010	Business English Skills	2
OFFC1019	Receptionist Skills	2
OFFC1045	Medical Terminology	2
OFFC1057	Medical Office Procedures	4
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>14</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
OFFC1030	Word Processing	3
OFFC1285	Oral Business Communication/Job Seeking Skills	2
OFFC1290	Written Business Communications	2
HEAL1101	Anatomy and Physiology	4
<b>Total Credits</b>		<b>11</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>25</b>
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*This is a sample course sequence resulting in a certificate.  
Please consult your program advisor regarding your academic plans.*

# MEDICAL CODING SPECIALIST

Location: Rosemount Campus

Start: Fall Semester, Full- or Part-Time

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

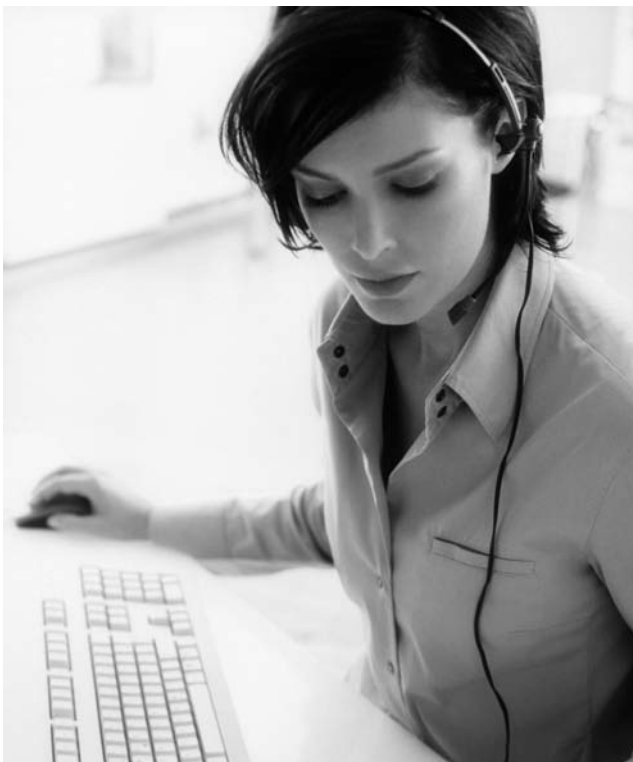
Typically supervised by chief financial officers or health information managers, medical coding specialists find employment in hospitals, clinics, surgery centers, home health care agencies, long-term care facilities, insurance companies, coding and billing services, government agencies and other organizations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

### Fall Semester – First Year

Course#	Course Title	Credits
ADSC1221†	Intro to Health Information Management	3
ADSC1231†	ICD-9-CM Coding	3
OFFC1005	Keyboarding/Formatting	3
OFFC1045	Medical Terminology	2
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>14</b>

### Spring Semester – First Year

Course#	Course Title	Credits
ADSC1040†	Applied Medical Terminology	2
ADSC1240†	Coding & Reimbursement for Physicians' Services	3
ADSC1244†	Legal and Ethical Aspects in Health Care	2
ADSC1249†	Advanced Coding and Reimbursement	2
HLTH1000†	Disease Conditions	2
HEAL1101	Anatomy and Physiology	4
HEAL1702	Pharmacology Basics	1
<b>Total Credits</b>		<b>16</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
ADSC1252†	Professional Practice for Coding Specialist	3
OFFC1155	MS Excel II	2
ENGL1100	Writing and Research Skills	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>11</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>41</b>
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*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

Location: Rosemount Campus

Start: Fall or Spring Semester, Full- or Part-Time

## 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, or 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: \$18.76/hour
- Top Earners: \$23.86/hour



## MEDICAL TRANSCRIPTIONIST – DIPLOMA

### Fall Semester – First Year

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

### Spring Semester – First Year

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

### TOTAL PROGRAM REQUIREMENTS

**39**

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

# BUSINESS AND MANAGEMENT



*Our Business and Management programs are delivered at the Partners in Higher Education campus 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

<b>Business</b>	<b>27</b>
<b>Business Entrepreneur</b>	<b>29</b>
<b>Individualized Studies</b>	<b>30</b>
<b>Industrial Distribution</b>	<b>31</b>
<b>Management for Airline Professionals</b>	<b>32</b>
<b>Management for Technical Professionals</b>	<b>33</b>
<b>Marketing and Sales</b>	<b>34</b>
<b>Meeting and Event Management</b>	<b>38</b>
<b>Multicultural Management</b>	<b>40</b>
<b>Real Estate Property Management</b>	<b>42</b>
<b>Supervisory Management</b>	<b>44</b>

## 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



Daytime Programs



Evening Programs



Online Programs

*Unless otherwise specified, all salary data is sourced from [iseek.org](http://iseek.org).*

FACULTY

**Scott Gunderson**  
Business, Individualized Studies, Industrial Distribution,  
Management for Airline and Technical Professionals,  
Supervisory Management  
*B.S., LaSalle University*  
*M.S., Metropolitan State University*  
651-423-8295 | [scott.gunderson@dctc.edu](mailto:scott.gunderson@dctc.edu)

**Rosealee Lee**  
Meeting and Event Management, Supervisory Management  
*Credentialed*  
651-423-8604 | [rosealee.lee@dctc.edu](mailto:rosealee.lee@dctc.edu)

**Martin Otto**  
Real Estate Property Management  
*B.A., Mankato State University*  
651-423-8453 | [martin.otto@dctc.edu](mailto:martin.otto@dctc.edu)

**Carie Statz**  
Marketing and Sales  
*B.A., University of Wisconsin, LaCrosse*  
*M.A., University of Wisconsin, Milwaukee*  
651-423-8622 | [carie.statz@dctc.edu](mailto:carie.statz@dctc.edu)

**Harold Torrence**  
Multicultural Management, Supervisory Management  
*B.A., Unitec*  
*M.A., Hamline University*  
651-423- 8606 | [harold.torrence@dctc.edu](mailto:harold.torrence@dctc.edu)

**Bob Voss**  
Business Entrepreneur  
*B.A., Gustavus Adolphus College*  
651-423-8356 | [bob.voss@dctc.edu](mailto:bob.voss@dctc.edu)

ADVISOR

**Patty Allen**  
*B.A., College of St. Benedict*  
651-423-8281 | [patty.allen@dctc.edu](mailto:patty.allen@dctc.edu)

DEAN

**Gary Hebert**  
*B.A., University of Wisconsin, Eau Claire*  
*M.S., University of Wisconsin, Stout*  
651-423-8307 | [gary.hebert@dctc.edu](mailto:gary.hebert@dctc.edu)

NOTES

*"Obstacles are those frightful things you  
see when you take your eyes off your goal."  
— Henry Ford —*

# BUSINESS

Location: Rosemount Campus, Apple Valley Site  
Start: Fall, Spring or Summer Semester, Full- or Part-Time

## 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 common core of business courses before selecting an emphasis area on the way to choosing a career path. 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 conferencing, 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.

- Account Executive
- Director of Sales
- Distribution Manager
- Human Resources Administrator
- Marketing Director
- Meeting and Event Manager
- Marketing Director

## Salary Data (payscale.com)

### Office Manager

- Median salary (U.S.): \$38,079/year

### Operations Manager

- Median salary (U.S.): \$51,200/year



## BUSINESS – A.S. DEGREE

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

### First Semester

Course#	Course Title	Credits
ACCT1000	Principles of Accounting I	4
MKTC1000	Principles of Marketing	3
SMGT1033	Business Law and Ethics	3
SMGT2046	Fundamentals of Management and Diversity	4
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>17</b>

### Second, Third and Fourth Semesters

Course#	Course Title	Credits
ACCT1003	Principles of Accounting II	4
	Technical Emphasis*	16
	General Education**	27
<b>Total Credits</b>		<b>47</b>

**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.*

*\*\* See General Education A.S. degree requirements on page 115.*

*\* Students must select one of the following 10  
emphasis areas to complete their technical emphasis.*

### Business Accounting Emphasis \*

ACCT1236	Business Payroll	2
ACCT1306	Spreadsheets	3
ACCT1406	Income Tax	4
ACCT2100	Cost Accounting I	4
ACCT2200	Accounting Computer Applications I	3
<b>Total Credits</b>		<b>16</b>

### Business Entrepreneur Emphasis \*

ENTR1150	The Successful Entrepreneur	2
ENTR1430	Marketing Strategies for a Small Business	2
ENTR1650	Selling Success for the Entrepreneur	3
ENTR1860	Business Plan Development	3
ENTR1900	Capitalizing a Small Business	2
OFFC1340	Quick Books Pro Basics <i>or</i> SMGT1601	2
SMGT1060	Habits for Personal Effectiveness	1
SMGT1250	Managing Customer Service	1
<b>Total Credits</b>		<b>16</b>

*Remaining technical emphasis areas continued on next page.*

**General Real Estate Emphasis \***

PMGT1101	Real Estate I	2
PMGT1102	Real Estate II	2
PMGT1204	Real Estate Law	2
PMGT1205	Loan Application/Processing	1
PMGT1207	Financing Instruments	1
PMGT1210	Appraisal Process	1
PMGT1212	Residential Appraisal Workshop	1
PMGT1224	Income Capitalization Analysis	1
PMGT1228	Community Association Management	1
PMGT1232	Cash Flow Analysis	1
PMGT1302	Planning and Operating a Small Business	1
PMGT1304	Marketing Strategies for Small Business	1
PMGT2020	Negotiating for Agreement	1
<b>Total Credits</b>		<b>16</b>

**Human Resources Management Emphasis \***

SMGT1231	Planning and Project Management	2
SMGT1242	Effective Business Communication	3
SMGT1405	Managing Performance	3
SMGT1441	Intro to Human Resources Management	3
SMGT1470	Safety and Compliance Management	2
SMGT1875	Training and Developing Employees	3
<b>Total Credits</b>		<b>16</b>

**Management Emphasis \***

SMGT1205	Total Quality Management	4
SMGT1260	Managing Teams	3
SMGT2001	Management Skills I, Foundations of Management	3
SMGT2002	Management Skills II, Plan & Organize	3
SMGT2003	Management Skills III, Lead & Control	3
<b>Total Credits</b>		<b>16</b>

**Marketing Emphasis \***

MKTC1100	Fundamentals of Sales	3
MKTC1150	Consumer and Professional Buying Behavior	3
MKTC2000	Advertising Practices and Procedures	3
MKTC2060	Proposal Writing	1
MKTC2215	Marketing Promotion	2
MKTC2410	Marketing Visual Communications	1
MKTC2600	Marketing Research	3
<b>Total Credits</b>		<b>16</b>

**Meeting and Event Management Emphasis \***

SMGT1160	Fundamentals of Meeting, Conference, and Event Management	2
SMGT1161	Advanced Meeting, Conference, and Event Management	3
SMGT1162	Special Event Coordination and Management	3
SMGT1163	Event Promotion	3
SMGT1164	Meeting and Event Risk Management	2
SMGT1167	Meeting and Event Sponsorship	3
<b>Total Credits</b>		<b>16</b>

**Multicultural Supervision Emphasis \***

SMGT2105	Managing Diversity	3
SMGT2110	Leading a Multicultural Workforce	3
SMGT2115	Multicultural Mentorship I	2
SMGT2116	Multicultural Mentorship II	1
SMGT2120	Multicultural Conflict Resolution	2
SMGT2125	International Business	3
SMGT2130	Creativity and Problem Solving	2
<b>Total Credits</b>		<b>16</b>

**Office Careers Emphasis \***

OFFC1010	Business English Skills	2
OFFC1017	Technology for the Business Professional	3
OFFC1020	Office Procedures	4
OFFC1040	Integrated Office Skills	3
OFFC1285	Oral Business Communication/Job Seeking Skills	2
OFFC1290	Written Business Communication	2
<b>Total Credits</b>		<b>16</b>

**Property Management Emphasis \***

PMGT1101	Real Estate I	2
PMGT1102	Real Estate II	2
PMGT1204	Real Estate Law	2
PMGT1200	Introduction to Property Management	1
PMGT1213	Managing Residential Property	1
PMGT1214	Life and Safety Issues	1
PMGT1216	Managing Commercial/Industrial Properties	1
PMGT1218	Maintenance and Risk Management	1
PMGT1220	Leases and Landlord-Tenant Relations	1
PMGT1226	Construction and Blueprint Reading	1
PMGT1228	Community Association Management	1
PMGT1230	Income Property Marketing	1
PMGT1302	Planning and Operating a Small Business	1
<b>Total Credits</b>		<b>16</b>

# BUSINESS ENTREPRENEUR

Location: Apple Valley Site

Start: Fall or Spring Semester, Full- or Part-Time

## 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

### Fall or Spring Semester - First Year

Course#	Course Title	Credits
ENTR1150	The Successful Entrepreneur	2
ENTR1440	Successful Marketing Strategies for Small Business	4
ENTR1650	Selling Success for the Entrepreneur	3
ENTR1860	Business Plan Development	3
ENTR1900	Capitalizing a Small Business <i>or</i> OFFC1340 <i>or</i> SMGT1601	2
SMGT1033	Business Law and Ethics	3
SMGT1250	Managing Customer Service	1
<b>Total Credits</b>		<b>18</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>18</b>
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*This is a sample course sequence resulting in a certificate.  
Please consult your program advisor regarding your academic plans.*



## INDIVIDUALIZED STUDIES

Location: Rosemount Campus, Apple Valley Site

Start: Fall, Spring or Summer Semester, Full- or Part-Time

### 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 adults 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

*Pending MnSCU Board Approval*

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

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

Course#	Course Title	Credits
SMGT 2950	Prior Experiential Learning Portfolio <i>or</i> INTS1012	1
	Required Technical Courses*	18
	Technical Electives	11
	General Education**	30
<b>Total Credits</b>		<b>60</b>

<b>TOTAL PROGRAM CREDITS</b>	<b>60</b>
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\* Required Technical Courses - Students must select 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 115.



# INDUSTRIAL DISTRIBUTION

Location: Apple Valley Site

Start: Fall, Spring or Summer Semester, Full- or Part-Time

## 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

*Pending MnSCU Board Approval*

### Fall Semester - First Year

Course#	Course Title	Credits
ELEC1110	DC Electricity Theory and Lab	3
ELEC1120	AC Electricity Theory and Lab	3
ELEC1140	Blueprint Reading for Technicians	3
MKTC1000	Principles of Marketing	3
MKTC1100	Fundamentals of Sales	3
SMGT1082	Distribution, Operations, & Logistics	3
<b>Total Credits</b>		<b>18</b>

### Spring Semester - First Year

Course#	Course Title	Credits
ELEC2110	Electrical Apparatus Theory	3
SMGT1205	Total Quality Management	4
SMGT1231	Planning & Project Management	2
SMGT1242	Effective Business Communication	3
SMGT1250	Managing Customer Service	1
SMGT2125	International Business	3
<b>Total Credits</b>		<b>16</b>

### Fall Semester - Second Year

Course#	Course Title	Credits
ELEC2970	Internship	1-6
	Technical Electives*	1 - 5
COML1400	Introduction to Computers	3
	General Education Elective (MnTC Goal 3 or 4)**	4
<b>Total Credits</b>		<b>13</b>

### Spring Semester - Second Year

Course#	Course Title	Credits
SPEE1020	Interpersonal Communication	3
ENGL1100	Writing and Research Skills	3
	General Education Electives**	7
<b>Total Credits</b>		<b>13</b>

**TOTAL PROGRAM REQUIREMENTS 60**

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

*\* Technical Electives - ELEC2970 Internship and/or  
Technical Electives need total 6 credits.*

*\*\* Select General Education electives from any MnTC goal area.  
See pages 116-118 for MnTC goal areas.*

# MANAGEMENT FOR AIRLINE PROFESSIONALS

Location: Apple Valley Site

Start: Fall, Spring or Summer Semester, Full- or Part-Time

## 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

## Salary Data (salary.com)

### 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
<b>Total Credits</b>	<b>1-30</b>

### Fall and Spring Semester – First Year

Course#	Course Title	Credits
	Technical Electives*	14-33
	<b>Total Credits</b>	<b>14-33</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
	General Education**	20
	<b>Total Credits</b>	<b>20</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>64</b>
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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.*

*\* Technical Electives may be selected from course subject SMGT.*

*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 115.*



# MANAGEMENT FOR TECHNICAL PROFESSIONALS

Location: Apple Valley Site

Start: Fall, Spring or Summer Semester, Full- or Part-Time

## 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
- Crew Chief
- Facility Manager
- Line Supervisor
- Maintenance Manager
- Manufacturing Supervisor

## Salary Data

- Average Wage: \$27.61/hour
- Top Earners: \$39.38/hour

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

### Prior Learning Credits

Technical Experience	1-30
<b>Total Credits</b>	<b>1-30</b>

### Fall and Spring Semester – First Year

Course#	Course Title	Credits
	Technical Electives*	14-33
	<b>Total Credits</b>	<b>14-33</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
	General Education**	20
	<b>Total Credits</b>	<b>20</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>64</b>
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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.*

*\* Technical Electives may be selected from course subject SMGT.*

*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 115.*

# MARKETING AND SALES

Location: Apple Valley Site

Start: Fall, Spring or Summer Semester, Full- or Part-Time

## 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.  
*This degree can be completed online.*

**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.*

**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.

**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.*

## Work Environment

Often situated in offices near top managers, marketing professionals work under pressure due to inevitable schedule changes, strict deadlines and departmental 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

## Salary Data (salary.com)

- Median wage (U.S.): \$49,466/year
- 75th percentile (U.S.): \$57,878/year

## BUSINESS MARKETING – A.S. DEGREE

*Pending MnSCU Board Approval*

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

### Fall Semester – First Year

Course#	Course Title	Credits
MKTC1000	Principles of Marketing	3
MKTC1100	Fundamentals of Sales	3
MKTC1150	Consumer and Professional Buying Behavior	3
COML1400	Introduction to Computers	3
	General Education Elective (MnTC Goal 3)**	3
<b>Total Credits</b>		<b>15</b>

### Spring Semester – First Year

Course#	Course Title	Credits
MKTC2000	Advertising Practices and Procedures	3
MKTC2060	Proposal Writing	1
MKTC2105	Marketing Communications Writing	3
MKTC2215	Marketing Promotions	2
ENGL1100	Writing and Research Skills	3
	General Education Elective (MnTC Goal 4)**	4
<b>Total Credits</b>		<b>16</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
MKTC2310	Public Relations	3
MKTC2505	E-Marketing	3
ECON1100	Microeconomics	3
SPEE1020	Interpersonal Communication	3
	General Education Elective**	4
<b>Total Credits</b>		<b>16</b>

### Spring Semester – Second Year

Course#	Course Title	Credits
MKTC2600	Marketing Research	3
MKTC2815	Business Law	3
ECON1200	Principles of Macroeconomics	3
	General Education Electives**	4
<b>Total Credits</b>		<b>13</b>

### TOTAL PROGRAM REQUIREMENTS

**60**

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

*\* Technical Electives may be selected from  
course subject MKTC, SMGT, ACCT and ENTR.*

*\*\* See General Education A.S. degree requirements on page 115.*

**BUSINESS MARKETING SPECIALIST – A.A.S. DEGREE***Pending MnSCU Board Approval***Fall Semester – First Year**

Course#	Course Title	Credits
MKTC1000	Principles of Marketing	3
MKTC1100	Fundamentals of Sales	3
MKTC1150	Consumer and Professional Buying Behavior	3
COML1400	Introduction to Computers	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>15</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
ACCT1000	Accounting I	4
MKTC2000	Advertising Practices and Procedures	3
MKTC2060	Proposal Writing	1
MKTC2105	Marketing Communications Writing	3
MKTC2215	Marketing Promotions	2
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>16</b>

**Fall Semester – Second Year**

Course#	Course Title	Credits
MKTC2310	Public Relations	3
MKTC2410	Marketing Visual Communications	1
MKTC2505	E-Marketing	3
MKTC2550	International Marketing	3
	Technical Elective*	3
	General Education Elective (MnTC Goal 3 or 4)**	3
<b>Total Credits</b>		<b>16</b>

**Spring Semester – Second Year**

Course#	Course Title	Credits
MKTC2600	Marketing Research	3
MKTC2815	Business Law	3
MKTC2900	Portfolio and Interviewing	1
MKTC2970	Internship	3
	General Education Elective **	3
<b>Total Credits</b>		<b>13</b>

**TOTAL PROGRAM REQUIREMENTS 60**

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

*\* Technical Electives may be selected from  
course subject MKTC, SMGT, ACCT and ENTR.*

*\*\* Select General Education electives from any MnTC goal area.  
See pages 116-118 for MnTC goal areas.*

**MARKETING COMMUNICATIONS SPECIALIST – CERTIFICATE****Fall Semester – First Year**

Course#	Course Title	Credits
MKTC1000	Principles of Marketing	3
MKTC1100	Fundamentals of Sales	3
MKTC1150	Consumer and Professional Buying Behavior	3
MKTC2000	Advertising Practices and Procedures	3
MKTC2215	Marketing Promotions	2
<b>Total Credits</b>		<b>14</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
MKTC2310	Public Relations	3
MKTC2410	Marketing Visual Communications	1
MKTC2505	E-Marketing	3
MKTC2600	Marketing Research	3
MKTC2815	Business Law	3
MKTC2970	Internship	1
<b>Total Credits</b>		<b>14</b>

**TOTAL PROGRAM REQUIREMENTS 28**

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



**MARKETING DESIGN SPECIALIST – A.A.S. DEGREE***Pending MnSCU Board Approval***Fall Semester – First Year**

Course#	Course Title	Credits
MKTC1000	Principles of Marketing	3
MKTC1100	Fundamentals of Sales	3
MKTC1150	Consumer and Professional Buying Behavior	3
VCOM1010	Introduction to Photoshop	2
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>14</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
MKTC2000	Advertising Practices and Procedures	3
MKTC2105	Marketing Communications Writing	3
MKTC2215	Marketing Promotions	2
VCOM1430	Introduction to InDesign	2
COML1400	Introduction to Computers	3
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>16</b>

**Fall Semester – Second Year**

Course#	Course Title	Credits
MKTC2310	Public Relations	3
MKTC2410	Marketing Visual Communications	1
MKTC2505	E-Marketing	3
MKTC2550	International Marketing	3
VCOM1410	Introduction to Illustrator	2
	General Education Elective (MnTC Goal 3 or 4)**	3
<b>Total Credits</b>		<b>15</b>

**Spring Semester – Second Year**

Course#	Course Title	Credits
MKTC2600	Marketing Research	3
MKTC2815	Business Law	3
MKTC2900	Portfolio and Interviewing	1
MKTC2970	Internship	3
VCOM2685	Web Page Construction I	2
	General Education Elective**	3
<b>Total Credits</b>		<b>15</b>

**TOTAL PROGRAM REQUIREMENTS 60**

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

*\*\* Select General Education electives from any MnTC goal area.  
See pages 116-118 for MnTC goal areas.*

**MARKETING DESIGN SPECIALIST – DIPLOMA***Pending MnSCU Board Approval***Fall Semester – First Year**

Course#	Course Title	Credits
MKTC1000	Principles of Marketing	3
MKTC1100	Fundamentals of Sales	3
MKTC1150	Consumer and Professional Buying Behavior	3
MKTC2000	Advertising Practices and Procedures	3
VCOM1010	Introduction to Photoshop	2
<b>Total Credits</b>		<b>14</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
MKTC2215	Marketing Promotions	2
MKTC2310	Public Relations	3
MKTC2410	Marketing Visual Communications	1
MKTC2505	E-Marketing	3
VCOM1430	Introduction to InDesign	2
VCOM1435	Proofreading Fundamentals	1
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>15</b>

**Fall Semester – Second Year**

Course#	Course Title	Credits
MKTC2600	Marketing Research	3
MKTC2815	Business Law	3
MKTC2970	Internship	1
VCOM1410	Introduction to Illustrator	2
VCOM2685	Web Page Construction I	2
COML1400	Introduction to Computers	3
ENGL1100	Writing and Research Skills (or ENGL1102)	3
<b>Total Credits</b>		<b>17</b>

**TOTAL PROGRAM REQUIREMENTS 46**

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

**SALES SPECIALIST – CERTIFICATE****Fall Semester – First Year**

Course#	Course Title	Credits
MKTC1000	Principles of Marketing	3
MKTC1100	Fundamentals of Sales	3
MKTC1150	Consumer and Professional Buying Behavior	3
MKTC1200	Professional Sales	3
<b>Total Credits</b>		<b>12</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>12</b>
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*This is a sample course sequence resulting in a certificate.  
Please consult your program advisor regarding your academic plans.*



# MEETING AND EVENT MANAGEMENT

Location: Apple Valley Site

Start: Fall and Spring Semester, Full- or Part-Time

## 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 onsite 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

## Salary Data

- Average Wage: \$23.37/hour
- Top Earners: \$34/hour

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

### Fall Semester – First Year

Course#	Course Title	Credits
SMGT1160	Fundamentals of Meeting, Conference and Event Management	2
SMGT1161	Advanced Meeting, Conference and Event Management	3
SMGT1162	Special Event Coordination and Management	3
COML1400	Introduction to Computers	3
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>14</b>

### Spring Semester – First Year

Course#	Course Title	Credits
SMGT1163	Event Promotion	3
SMGT1665	Lodging Operations	3
SMGT1680	Hospitality Space and Logistics Management	3
SMGT1695	Hospitality Risk Management	2
PHIL1200	Critical Thinking	3
	General Education Elective (MnTC Goal 3 or 4)**	4
<b>Total Credits</b>		<b>18</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
SMGT1167	Meeting and Event Sponsorship†	3
SMGT2001	Management Skills I, Foundations in Management	3
SMGT2002	Management Skills II, Planning and Organizing	3
SMGT2003	Management Skills III, Leading and Controlling	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>15</b>

### Spring Semester – Second Year

Course#	Course Title	Credits
	Technical Emphasis††	9
	General Education Elective**	4
<b>Total Credits</b>		<b>13</b>

## TOTAL PROGRAM REQUIREMENTS

**60**

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

*\*\* Select General Education electives from any MnTC goal area. See pages 116-118 for MnTC goal areas.*

*† 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.*

**Hospitality Management Emphasis ††**

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

**Casino Management Emphasis ††**

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

**MEETING AND EVENT MANAGEMENT – CERTIFICATE****Fall Semester – First Year**

Course#	Course Title	Credits
SMGT1160	Fundamentals of Meeting, Conference, and Event Management	2
SMGT1161	Advanced Meeting, Conference, and Event Management	3
SMGT1162	Special Event Coordination and Management	3
SMGT1163	Event Promotion	3
SMGT1167	Meeting and Event Sponsorship†	3
SMGT1695	Hospitality Risk Management	2
<b>Total Credits</b>		<b>16</b>

**TOTAL PROGRAM REQUIREMENTS****16**

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

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



# MULTICULTURAL MANAGEMENT



Location: Apple Valley Site

Start: Fall, Spring or Summer Semester, Full- or Part-Time

## 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: \$27.61/hour
- Top Earners: \$39.38/hour

## MULTICULTURAL LEADERSHIP – DIPLOMA

### Fall Semester – First Year

Course#	Course Title	Credits
SMGT1000	Principles of Supervision	3
SMGT1022	Leadership	3
SMGT1028	Management Effectiveness	3
SMGT1601	Financial Management	2
SMGT1776	Organizational Behavior	3
SMGT2105	Managing Diversity	3
<b>Total Credits</b>		<b>17</b>

### Spring Semester – First Year

Course#	Course Title	Credits
SMGT2110	Leading a Multicultural Workforce	3
SMGT2115	Multicultural Mentorship I	2
SMGT2116	Multicultural Mentorship II	1
SMGT2120	Multicultural Conflict Resolution	2
SMGT2125	International Business	3
SMGT2130	Creativity and Problem Solving	2
	General Education**	3
<b>Total Credits</b>		<b>16</b>

**TOTAL PROGRAM REQUIREMENTS 33**

*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 ENGL1100.*



## MULTICULTURAL HUMAN RESOURCES MANAGEMENT – DIPLOMA

### Fall Semester – First Year

Course#	Course Title	Credits
SMGT1033	Business Law & Ethics	3
SMGT1405	Managing Performance	3
SMGT1441	Intro to Human Resource Management	3
SMGT1470	Safety and Compliance Management	2
SMGT1875	Training and Developing Employees	3
SMGT2105	Managing Diversity	3
<b>Total Credits</b>		<b>17</b>

### Spring Semester – First Year

Course#	Course Title	Credits
SMGT2110	Leading a Multicultural Workforce	3
SMGT2115	Multicultural Mentorship I	2
SMGT2116	Multicultural Mentorship II	1
SMGT2120	Multicultural Conflict Resolution	2
SMGT2125	International Business	3
SMGT2130	Creativity and Problem Solving	2
	General Education**	3
<b>Total Credits</b>		<b>16</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>33</b>
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*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 ENGL1100

# REAL ESTATE PROPERTY MANAGEMENT

Location: Apple Valley Site

Start: Fall or Spring Semester, Full- or Part-Time

## 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

Professionals in this field find work managing residential, retail or office buildings in downtown, suburban or rural settings. Careers are found in real estate, financing, property management, investing and community association management.

## 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: \$19.68/hour
- Top Earners: \$37.47/hour

### Property Manager

- Average Wage: \$28.20/hour
- Top Earners: \$49/hour



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

### Fall Semester – First Year

Course#	Course Title	Credits
PMGT1101	Real Estate I	2
PMGT1102	Real Estate II	2
PMGT1204	Real Estate Law	2
PMGT1207	Instruments of Real Estate Finance	1
PMGT1210	Appraisal Process	1
PMGT1212	Residential Appraisal Workshop	1
	Technical Electives*	4
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>16</b>

### Spring Semester – First Year

Course#	Course Title	Credits
PMGT1200	Introduction to Property Management	1
PMGT1207	Instruments of Real Estate Finance	1
PMGT1213	Managing Residential Property	1
PMGT1214	Life and Safety Issues	1
PMGT1216	Managing Commercial/Industrial Properties	1
PMGT1218	Maintenance and Risk Management	1
PMGT1220	Leases and Landlord-Tenant Relations	1
PMGT1230	Income Property Marketing	1
PMGT2020	Negotiating for Agreement	1
	Technical Electives*	6
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>17</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
PMGT1226	Construction and Blueprint Reading	1
	Technical Electives*	9
ENGL1100	Writing and Research Skills	3
	General Education Elective**	3
<b>Total Credits</b>		<b>16</b>

### Spring Semester – Second Year

Course#	Course Title	Credits
PMGT1205	Loan Application and Processing	1
PMGT1224	Income Capitalization Analysis	1
PMGT1228	Community Association Management	1
PMGT1232	Cash Flow Analysis	1
PMGT1302	Planning and Operating a Small Business	1
PMGT1304	Marketing Strategies for Small Business	1
PMGT1401	Real Estate Math and Calculator Basics	1
	General Education Elective (MnTC Goal 3 or 4)**	4
	General Education Elective**	4
<b>Total Credits</b>		<b>15</b>

### 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 course subject areas PMGT, MKTC, ENTR, ISTC, SMGT, LAHT and ACCT; up to nine internship credits may be taken with advisor approval.*

*\*\* Select General Education electives from any MnTC goal area. See pages 116-118 for MnTC goal areas.*

**REAL ESTATE PROPERTY MANAGEMENT – DIPLOMA****Fall Semester – First Year**

Course#	Course Title	Credits
PMGT1101	Real Estate I	2
PMGT1102	Real Estate II	2
PMGT1204	Real Estate Law	2
PMGT1207	Instruments of Real Estate Finance	1
PMGT1210	Appraisal Process	1
PMGT1212	Residential Appraisal Workshop	1
	Technical Elective*	3
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>15</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
PMGT1200	Introduction to Property Management	1
PMGT1205	Loan Application and Processing	1
PMGT1213	Managing Residential Properties	1
PMGT1214	Life and Safety Issues	1
PMGT1216	Managing Commercial/Industrial Properties	1
PMGT1218	Maintenance and Risk Management	1
PMGT1220	Leases and Landlord-Tenant Relations	1
PMGT1230	Income Property Marketing	1
PMGT2020	Negotiating for Agreement	1
	Technical Elective*	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>15</b>

**Fall Semester – Second Year**

Course#	Course Title	Credits
PMGT1224	Income Capitalization Analysis	1
PMGT1226	Construction and Blueprint Reading	1
PMGT1228	Community Association Management	1
PMGT1232	Cash Flow Analysis	1
PMGT1302	Planning and Operating a Small Business	1
PMGT1304	Marketing Strategies for Small Business	1
PMGT1401	Real Estate Math and Calculator Basics	1
	Technical Electives*	5
ENGL1100	Writing and Research Skills (or ENGL1102)	3
<b>Total Credits</b>		<b>15</b>

**TOTAL PROGRAM REQUIREMENTS 45**

*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 course subject areas PMGT, MKTC, ENTR, ISTC, SMGT, LAHT and ACCT; up to nine internship credits may be taken with advisor approval

**PROPERTY MANAGEMENT – CERTIFICATE****Fall Semester – First Year**

Course#	Course Title	Credits
PMGT1101	Real Estate I	2
PMGT1102	Real Estate II	2
PMGT1204	Real Estate Law	2
PMGT1200	Introduction to Property Management	1
PMGT1213	Managing Residential Property	1
PMGT1214	Life and Safety Issues	1
PMGT1216	Managing Commercial/Industrial Properties	1
PMGT1218	Maintenance and Risk Management	1
PMGT1220	Leases and Landlord-Tenant Relations	1
PMGT1226	Construction and Blueprint Reading	1
PMGT1228	Community Association Management	1
PMGT1230	Income Property Marketing	1
PMGT1302	Planning and Operating a Small Business	1
<b>Total Credits</b>		<b>16</b>

**TOTAL PROGRAM REQUIREMENTS 16**

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

**GENERAL REAL ESTATE – CERTIFICATE****Fall Semester – First Year**

Course#	Course Title	Credits
PMGT1101	Real Estate I	2
PMGT1102	Real Estate II	2
PMGT1204	Real Estate Law	2
PMGT1205	Loan Application/Processing	1
PMGT1207	Financing Instruments	1
PMGT1210	Appraisal Process	1
PMGT1212	Residential Appraisal Workshop	1
PMGT1224	Income Capitalization Analysis	1
PMGT1228	Community Association Management	1
PMGT1232	Cash Flow Analysis	1
PMGT1302	Planning and Operating a Small Business	1
PMGT1304	Marketing Strategies for Small Business	1
PMGT2020	Negotiating for Agreement	1
<b>Total Credits</b>		<b>16</b>

**TOTAL PROGRAM REQUIREMENTS 16**

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

# SUPERVISORY MANAGEMENT

Location: Apple Valley Site

Start: Fall, Spring or Summer Semester, Full- or Part-Time

## 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: \$27.61/hour
- Top earners: \$39.38/hour

## SUPERVISORY MANAGEMENT – A.A.S. DEGREE

### Fall Semester – First Year

Course#	Course Title	Credits
	Supervisory Leadership Certificate	
<b>Total Credits</b>		<b>17</b>

### Spring Semester – First Year

Course#	Course Title	Credits
	Certificate of choice*	
<b>Total Credits</b>		<b>16-18</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
	Certificate of choice*	
<b>Total Credits</b>		<b>16-18</b>

### Spring Semester – Second Year

Course#	Course Title	Credits
SMGT1605	Graduation Project	1-3
	General Education**	11-17
<b>Total Credits</b>		<b>12-18</b>

**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.*

*\*\* See General Education portion of catalog.*

*\* Students must select a certificate from those listed on the two following pages.*



**SUPERVISORY LEADERSHIP – CERTIFICATE****Fall or Spring Semester**

Course#	Course Title	Credits
SMGT1000	Principles of Supervision	3
SMGT1022	Leadership	3
SMGT1028	Management Effectiveness	3
SMGT1601	Financial Management	2
SMGT1776	Organizational Behavior	3
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>17</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>17</b>
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*This is a sample course sequence resulting in a certificate.  
Please consult your program advisor regarding your academic plans.*

**BUSINESS ENTREPRENEUR – CERTIFICATE \*****Fall or Spring Semester**

Course#	Course Title	Credits
ENTR1150	The Successful Entrepreneur	2
ENTR1440	Successful Marketing Strategies for Small Business	4
ENTR1650	Selling Success for the Entrepreneur	3
ENTR1860	Business Plan Development	3
ENTR1900	Capitalizing a Small Business <i>or</i> OFFC1240 <i>or</i> SMGT1601	2
SMGT1033	Business Law and Ethics	3
SMGT1250	Managing Customer Service	1
<b>Total Credits</b>		<b>18</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>18</b>
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*This is a sample course sequence resulting in a certificate.  
Please consult your program advisor regarding your academic plans.*

**HUMAN RESOURCE DEVELOPMENT – CERTIFICATE \*****Fall or Spring Semester**

Course#	Course Title	Credits
SMGT1033	Business Law & Ethics	3
SMGT1405	Managing Performance	3
SMGT1441	Intro to Human Resource Management	3
SMGT1470	Safety and Compliance Management	2
SMGT1875	Training and Developing Employees	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>17</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>17</b>
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*This is a sample course sequence resulting in a certificate.  
Please consult your program advisor regarding your academic plans.*

*Remaining certificate continued on next page.*

**MEETING AND EVENT MANAGEMENT – CERTIFICATE \*****Fall or Spring Semester**

Course#	Course Title	Credits
SMGT1160	Fundamentals of Meeting, Conference, and Event Management	2
SMGT1161	Advanced Meeting, Conference, and Event Management	3
SMGT1162	Special Event Coordination and Management	3
SMGT1163	Event Promotion	3
SMGT1167	Meeting and Event Sponsorship	3
SMGT1695	Hospitality Risk Management	2
<b>Total Credits</b>		<b>16</b>

**TOTAL PROGRAM REQUIREMENTS 16**

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

**QUALITY IMPROVEMENT – CERTIFICATE \*****Fall or Spring Semester**

Course#	Course Title	Credits
SMGT1205	Total Quality Management	4
SMGT1260	Managing Teams	3
SMGT1242	Effective Business Communications	3
SMGT1231	Planning and Project Management	2
SMGT1250	Managing Customer Service	1
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>16</b>

**TOTAL PROGRAM REQUIREMENTS 16**

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



# DESIGN



## PROGRAMS OF STUDY

<b>Architectural Technology</b>	<b>50</b>
<b>Interior Design</b>	<b>52</b>
<b>Landscape Horticulture</b>	<b>54</b>
<b>Visual Communications</b>	<b>56-66</b>
- Applied Visual Arts	56
- Electronic Publishing	58
- Graphic Design Technology	60
- Multimedia/Web Page Design	62
- Photographic Imaging Technology	63
- Photography	66
<b>Wood Finishing Technology</b>	<b>67</b>

## 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



Daytime Programs



Evening Programs



Online Programs

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

## FACULTY

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### Mary Belanger

#### Graphic Design Technology

*B.S., Bemidji State University*

651-423-8320 | [mary.belanger@dctc.edu](mailto:mary.belanger@dctc.edu)

### Matthew Brooks

#### Landscape Technology

*B.A., University of Illinois at Urbana/Champaign*

*M.L.A., University of Minnesota*

651-423-8392 | [matthew.brooks@dctc.edu](mailto:matthew.brooks@dctc.edu)

### Beverly Claybrook

#### Architectural Technology

*B.A., State University of New York*

*M.A., University of Minnesota*

651-423-8306 | [beverly.claybrook@dctc.edu](mailto:beverly.claybrook@dctc.edu)

### Cordelia Early

#### Interior Design

*B.S., University of Minnesota*

*B.S., University of Wisconsin*

651-423-8261 | [coco.early@dctc.edu](mailto:coco.early@dctc.edu)

### William Eilers

#### Photographic Technology

*B.S., University of Wisconsin*

*M.A., University of Minnesota*

651-423-8364 | [william.eilers@dctc.edu](mailto:william.eilers@dctc.edu)

### Anne Farniok

#### Interior Design

*B.S., University of Minnesota*

651-423-8414 | [anne.farniok@dctc.edu](mailto:anne.farniok@dctc.edu)

### Katharine Huus

#### Interior Design

*B.S., San Jose State University*

651-423-8456 | [katherine.huus@dctc.edu](mailto:katherine.huus@dctc.edu)

### Jeffrey Kleinboehl

#### Landscape Horticulture

*Diploma, Dakota County Technical College*

651-423-8478 | [jeffrey.kleinboehl@dctc.edu](mailto:jeffrey.kleinboehl@dctc.edu)

### Mitchell Kohanek

#### Wood Finishing Technology

*B.S., Mankato State University*

651-423-8362 | [mitchell.kohanek@dctc.edu](mailto:mitchell.kohanek@dctc.edu)

### Connie Larson

#### Graphic Design Technology

*B.A., University of Minnesota*

*B.A., Alverno College*

*M.E., University of Minnesota*

651-423-8529 | [connie.larson@dctc.edu](mailto:connie.larson@dctc.edu)

### Peter Skoro

#### Graphic Design Technology

*B.F.A., Minneapolis College of Art and Design*

*M.E., The College of St. Scholastica*

651-423-8530 | [peter.skoro@dctc.edu](mailto:peter.skoro@dctc.edu)

### Darrell Tangen

#### Photographic Technology

*A.A.S., Anoka-Ramsey Community College*

*B.S., University of Minnesota*

*M.A., St. Mary's University*

651-423-8584 | [darrell.tangen@dctc.edu](mailto:darrell.tangen@dctc.edu)

### Charles West

#### Architectural Technology

*Diploma, Anoka Technical College*

651-423-8054 | [charles.west@dctc.edu](mailto:charles.west@dctc.edu)

## ADVISOR

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### Alison Tauer

*B.A., College of St. Benedict*

651-423-8384 | [alison.tauer@dctc.edu](mailto:alison.tauer@dctc.edu)

## DEAN

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### Sherralyn Cox

*B.S., University of Louisville*

*M.S., Western Kentucky University*

*Ph.D., University of Kentucky*

651-423-8235 | [sherralyn.cox@dctc.edu](mailto:sherralyn.cox@dctc.edu)

**NOTES**


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

*— April Greiman —*



# ARCHITECTURAL TECHNOLOGY

Location: Rosemount Campus  
Start: Fall Semester, Full-Time

## 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 of study 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: \$24.14/hour
- Top Earners: \$35.36/hour



## ARCHITECTURAL TECHNOLOGY – A.A.S. DEGREE

### Fall Semester - First Year

Course#	Course Title	Credits
ARCT1101	Architectural Studio IA	4
ARCT1102	Architectural Studio IB	4
ARCT1103	Building Technology I	3
	Technical Elective*	3
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>17</b>

### Spring Semester - First Year

Course#	Course Title	Credits
ARCT1107	CAD I	3
ARCT1200	Architectural Studio II	8
ARCT1203	Building Technology II	3
ARCT1207	CAD II	3
<b>Total Credits</b>		<b>17</b>

### Fall Semester - Second Year

Course#	Course Title	Credits
ARCT2100	Architectural Studio III	8
ARCT2103	Building Technology III	3
ARCT2107	CAD III	3
	Technical Elective*	1
	General Education Elective**	4
<b>Total Credits</b>		<b>19</b>

### Spring Semester - Second Year

Course#	Course Title	Credits
ARCT2200	Architectural Studio IV	5
ARCT2970	Internship	1-5
SPEE1020	Interpersonal Communication	3
ENGL1100	Writing and Research Skills	3
	General Education Elective (MnTC Goal 3 or 4)**	4
	General Education Elective**	3
<b>Total Credits</b>		<b>19</b>

### 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 course subject ARCT.*

*\*\* Select General Education electives from any MnTC goal area.  
See pages 116-118 for MnTC goal areas.*

**ARCHITECTURAL TECHNOLOGY – DIPLOMA****Fall Semester - First Year**

Course#	Course Title	Credits
ARCT1101	Architectural Studio IA	4
ARCT1102	Architectural Studio IB	4
ARCT1103	Building Technology I	3
ARCT1107	CAD I	3
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>17</b>

**Spring Semester - First Year**

Course#	Course Title	Credits
ARCT1200	Architectural Studio II	8
ARCT1203	Building Technology II	3
ARCT1207	CAD II	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>17</b>

**Fall Semester - Second Year**

Course#	Course Title	Credits
ARCT2100	Architectural Studio III	8
ARCT2103	Building Technology III	3
ARCT2107	CAD III	3
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>17</b>

**Spring Semester - Second Year**

Course#	Course Title	Credits
ARCT2200	Architectural Studio IV	5
ARCT2970	Internship	4-8
	Technical Electives*	4
<b>Total Credits</b>		<b>13</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>64</b>
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*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 course subject ARCT.*

*\*\* Select General Education electives from any MnTC goal area.  
See pages 116-118 for MnTC goal areas.*

# INTERIOR DESIGN

Location: Rosemount Campus

Start: Fall Semester, Full- or Part-Time

## 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: \$26.20/hour
- Top Earners: \$39.89/hour



## INTERIOR DESIGN – A.A.S. DEGREE

### Fall Semester - First Year

Course#	Course Title	Credits
IDES1100	Design Fundamentals	4
IDES1110	Drafting for Interiors	4
IDES1120	Critical Thinking and Programming	4
IDES1135	Visual and Verbal Presentations	3
<b>Total Credits</b>		<b>15</b>

### Spring Semester - First Year

Course#	Course Title	Credits
IDES1206	Residential Studio I	3
IDES1217	Commercial Studio I	3
ENGL1100	Writing and Research Skills	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>12</b>

### Fall Semester - Second Year

Course#	Course Title	Credits
IDES2106	Color and Light	3
IDES2110	Materials, Estimating, and Specifications	3
	General Education**	9
<b>Total Credits</b>		<b>15</b>

### Spring Semester - Second Year

Course#	Course Title	Credits
IDES1225	Computer Aided Drafting	3
IDES1230	History of Art, Architecture, and Interiors	4
	General Education**	6
<b>Total Credits</b>		<b>13</b>

### Fall Semester - Third Year

Course#	Course Title	Credits
IDES2100	Interior Design Career Directions	1
IDES2136	Commercial Studio II	4
IDES2146	Residential Studio II (Kitchen and Bath)	4
	General Education**	6
<b>Total Credits</b>		<b>15</b>

### Spring Semester - Third Year

Course#	Course Title	Credits
IDES2200	Professional Business Practices and Sales	3
IDES2210	Senior Studio	5
IDES2970	Internship	4
	General Education**	3
<b>Total Credits</b>		<b>15</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>85</b>
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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.*

*\*\* 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 116-118 for MnTC goal areas.*

**INTERIOR DESIGN – DIPLOMA****Fall Semester - First Year**

Course#	Course Title	Credits
IDES1100	Design Fundamentals	4
IDES1110	Drafting for Interiors	4
IDES1120	Critical Thinking and Programming	4
IDES1135	Visual and Verbal Presentations	3
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>18</b>

**Spring Semester - First Year**

Course#	Course Title	Credits
IDES1206	Residential Studio I	3
IDES1217	Commercial Studio I	3
IDES1225	Computer Aided Drafting	3
IDES1230	History of Art, Architecture, and Interiors	4
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>16</b>

**Fall Semester - Second Year**

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

**Spring Semester - Second Year**

Course#	Course Title	Credits
IDES2200	Professional Business Practices and Sales	3
IDES2210	Senior Studio	5
IDES2970	Internship	4
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>15</b>

**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

Location: Rosemount Campus

Start: Fall or Spring Semester, Full- or Part-Time

## Major Description

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

- Design and Sales
- Landscape Construction
- Plant Production (nursery and greenhouse)

## Work Environment

Landscape professionals design, install and care for residential, commercial and public landscapes. They find work in nurseries, greenhouses, garden centers as well as in exterior and interior landscape or maintenance firms.

## Potential Job Titles

- Turf Manager
- Grounds Manager
- Horticultural Worker
- Gardener
- Landscape Specialist
- Landscape Designer
- Hardscape Technician
- Plant Production Specialist

## Salary Data

- Average wage: \$13.96/hour
- Top Earners: \$20.96/hour



## LANDSCAPE HORTICULTURE – A.A.S. DEGREE

### Fall Semester - First Year

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

### Spring Semester - First Year

Course#	Course Title	Credits
LAHT1000	Plant Science	2
LAHT1110	Woody Plant Materials II	2
LAHT1310	Plant Maintenance	2
LAHT1320	Turf Management	3
LAHT1600	Landscape Design I	3
LAHT2970	Supervised Occupational Experience I	1
LAHT2970	Supervised Occupational Experience II	1
	General Education Elective (MnTC Goal 3 or 4)**	4
<b>Total Credits</b>		<b>18</b>

### Fall Semester - Second Year

Course#	Course Title	Credits
LAHT1400	Greenhouse Operations	2
LAHT1410	Nursery Operations	2
LAHT2000	Herbaceous Plant Materials	2
LAHT2510	Landscape Estimating	3
	Technical Electives*	4
ENGL1100	Writing and Research Skills	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>19</b>

### Spring Semester - Second Year

Course#	Course Title	Credits
ACCT1005	Principles of Bookkeeping	2
LAHT2500	Landscape Business Management	4
LAHT2970	Supervised Occupational Experience III	1
LAHT2970	Supervised Occupational Experience IV	1
	Technical Electives*	4
	General Education Electives**	7
<b>Total Credits</b>		<b>19</b>

### 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 course subject LAHT.

\*\* Select General Education electives from any MnTC goal area. See pages 116-118 for MnTC goal areas.

**LANDSCAPE HORTICULTURE – DIPLOMA****Fall Semester - First Year**

Course#	Course Title	Credits
LAHT1010	Soil Science	3
LAHT1100	Woody Plant Materials I	2
LAHT1200	Plant Pests	3
LAHT1300	Landscape Construction I	3
LAHT1502	Safety and Equipment	1
LAHT1510	Landscape Mathematics	1
<b>Total Credits</b>		<b>13</b>

**Spring Semester - First Year**

Course#	Course Title	Credits
LAHT1000	Plant Science	2
LAHT1110	Woody Plant Materials II	2
LAHT1310	Plant Maintenance	2
LAHT1320	Turf Management	3
LAHT1600	Landscape Design I	3
LAHT2970	Supervised Occupational Experience I	1
LAHT2970	Supervised Occupational Experience II	1
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>17</b>

**Fall Semester - Second Year**

Course#	Course Title	Credits
LAHT1400	Greenhouse Operations	2
LAHT1410	Nursery Operations	2
LAHT2000	Herbaceous Plant Materials	2
LAHT2510	Landscape Estimating	3
	Technical Electives*	6
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>18</b>

**Spring Semester - Second Year**

Course#	Course Title	Credits
ACCT1005	Principles of Bookkeeping	2
LAHT2500	Landscape Business Management	4
LAHT2970	Supervised Occupational Experience III	1
LAHT2970	Supervised Occupational Experience IV	1
	Technical Electives*	6
ENGL1100	Writing and Research Skills (or ENGL1102)	3
<b>Total Credits</b>		<b>17</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>65</b>
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*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 course subject LAHT.*

# APPLIED VISUAL ARTS

Location: Rosemount Campus

Start: Fall or Spring Semester, Full- or Part-Time

## 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: \$22.72/hour
- Top Earners: \$36.37/hour



## APPLIED VISUAL ARTS – A.A.S. DEGREE

### Fall Semester – First Year

Course#	Course Title	Credits
VCOM1001	Introduction to Visual Communications	2
VCOM1015	Layout I	2
VCOM1030	Visual Design Fundamentals	3
VCOM1040	Basic Drawing	3
VCOM1415	Typography Fundamentals	2
COML1400	Introduction to Computers	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>18</b>

### Spring Semester – First Year

Course#	Course Title	Credits
VCOM1006	Color Theory and Applications	2
VCOM1060	Creative Problem Solving	3
VCOM1095	Illustration Fundamentals	3
VCOM1410	Introduction to Illustrator	2
	General Education Elective (MnTC Goal 3 or 4)**	4
	General Education Elective**	4
<b>Total Credits</b>		<b>18</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
VCOM1010	Introduction to Photoshop	2
VCOM1021	Introduction to Photography	3
VCOM1051	Scale and Perspective	2
VCOM1400	Intro to QuarkXPress <i>or</i> VCOM1430	2
VCOM2085	Drawing for Illustration	2
VCOM2420	Advanced Computer Illustration	3
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>17</b>

### Spring Semester – Second Year

Course#	Course Title	Credits
VCOM2035	Layout II	3
VCOM2095	Painting for Illustration	2
VCOM2724	Portfolio for Applied Visual Arts	2
VCOM2730	Career Research Skills	1
	Technical Electives*	8
	General Education Elective**	3
<b>Total Credits</b>		<b>19</b>

### 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 course subject VCOM.

\*\* Select General Education electives from any MnTC goal area. See pages 116-118 for MnTC goal areas.

**APPLIED VISUAL ARTS – DIPLOMA****Fall Semester - First Year**

Course#	Course Title	Credits
VCOM1001	Introduction to Visual Communications	2
VCOM1015	Layout I	2
VCOM1030	Visual Design Fundamentals	3
VCOM1040	Basic Drawing	3
VCOM1415	Typography Fundamentals	2
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>15</b>

**Spring Semester - First Year**

Course#	Course Title	Credits
VCOM1006	Color Theory and Applications	2
VCOM1060	Creative Problem Solving	3
VCOM1095	Illustration Fundamentals	3
VCOM1410	Introduction to Illustrator	2
	Technical Electives*	4
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>17</b>

**Fall Semester - Second Year**

Course#	Course Title	Credits
VCOM1010	Introduction to Photoshop	2
VCOM1021	Introduction to Photography	3
VCOM1051	Scale and Perspective	2
VCOM1400	Intro to QuarkXPress <i>or</i> VCOM1430	2
VCOM2085	Drawing for Illustration	2
VCOM2420	Advanced Computer Illustration	3
ENGL1100	Writing and Research Skills (or ENGL1102)	3
<b>Total Credits</b>		<b>17</b>

**Spring Semester - Second Year**

Course#	Course Title	Credits
VCOM2035	Layout II	3
VCOM2095	Painting for Illustration	2
VCOM2724	Portfolio for Applied Visual Arts	2
VCOM2730	Career Research Skills	1
	Technical Electives*	7
<b>Total Credits</b>		<b>15</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>64</b>
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*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 course subject VCOM.*

# ELECTRONIC PUBLISHING

Location: Rosemount Campus

Start: Fall or Spring Semester, Full- or Part-Time

## Major Description

This program trains students to use computer software 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 materials. Desktop publishers are also knowledgeable about input devices such as scanners and output devices such as in-house and commercial printers.

## Work Environment

Desktop 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

- Desktop Publishing Specialist
- Design Editor
- Electronic Prepress Operator
- Page Makeup System Operator
- Computer Typesetter
- Electronic Console Display Operator

## Salary Data

- Average Wage: \$22.48/hour
- Top Earners: \$30.11/hour



## ELECTRONIC PUBLISHING – A.A.S. DEGREE

*Pending MnSCU Board Approval*

### Fall Semester – First Year

Course#	Course Title	Credits
VCOM1001	Introduction to Visual Communications	2
VCOM1006	Color Theory and Applications	2
VCOM1015	Layout I	2
VCOM1021	Introduction to Photography	3
VCOM1030	Visual Design Fundamentals	3
VCOM1060	Creative Problem Solving	3
VCOM1415	Typography Fundamentals	2
VCOM1422	Print Processes I	2
<b>Total Credits</b>		<b>19</b>

### Spring Semester – First Year

Course#	Course Title	Credits
VCOM1010	Introduction to Photoshop	2
VCOM1400	Intro to QuarkXPress <i>or</i> VCOM1430	2
VCOM1410	Introduction to Illustrator	2
VCOM1435	Proofreading Fundamentals	1
	Technical Electives*	8
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>18</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
VCOM2415	Advanced Electronic Publishing	3
VCOM2422	Print Processes II	3
	Technical Electives*	8
	General Education Elective (MnTC Goal 3 or 4)**	4
<b>Total Credits</b>		<b>18</b>

### Spring Semester – Second Year

Course#	Course Title	Credits
VCOM2970	VisCom Internship	4
SPEE1020	Interpersonal Communication	3
ENGL1100	Writing and Research Skills	3
	General Education Electives**	7
<b>Total Credits</b>		<b>17</b>

### 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 course subject VCOM.*

*\*\* Select General Education electives from any MnTC goal area. See pages 116-118 for MnTC goal areas.*

**ELECTRONIC PUBLISHING – DIPLOMA****Fall Semester – First Year**

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

**Spring Semester – First Year**

Course#	Course Title	Credits
VCOM1010	Introduction to Photoshop	2
VCOM1400	Intro to QuarkXPress <i>or</i> VCOM1430	2
VCOM1410	Introduction to Illustrator	2
VCOM1422	Print Processes I	2
VCOM1435	Proofreading Fundamentals	1
	Technical Electives*	7
<b>Total Credits</b>		<b>16</b>

**Fall Semester – Second Year**

Course#	Course Title	Credits
VCOM2415	Advanced Electronic Publishing	3
VCOM2422	Print Processes II	3
	Technical Electives*	12
<b>Total Credits</b>		<b>18</b>

**Spring Semester – Second Year**

Course#	Course Title	Credits
VCOM2970	VisCom Internship	4
COML1400	Introduction to Computers	3
SPEE1020	Interpersonal Communication	3
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>13</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>64</b>
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*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 course subject VCOM.*

# GRAPHIC DESIGN TECHNOLOGY

Location: Rosemount Campus

Start: Fall or Spring Semester, Full- or Part-Time

## 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: \$24.14/hour
- Top Earners: \$37.11/hour



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

### Fall Semester – First Year

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

### Spring Semester – First Year

Course#	Course Title	Credits
VCOM1010	Introduction to Photoshop	2
VCOM1021	Introduction to Photography	3
VCOM1400	Intro to QuarkXPress <i>or</i> VCOM1430	2
VCOM1410	Introduction to Illustrator	2
VCOM2422	Print Processes II	3
VCOM2685	Web Page Construction I	2
	General Education Elective**	4
<b>Total Credits</b>		<b>18</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
VCOM2400	Advanced Photoshop	3
VCOM2415	Advanced Electronic Publishing	3
VCOM2420	Advanced Computer Illustration	3
VCOM2680	Introduction to Flash	2
	Technical Electives*	6
<b>Total Credits</b>		<b>17</b>

### Spring Semester – Second Year

Course#	Course Title	Credits
VCOM2721	Portfolio for Graphic Design	2
VCOM2730	Career Research Skills	1
COML1400	Introduction to Computers	3
SPEE1020	Interpersonal Communication	3
ENGL1100	Writing and Research Skills	3
	General Education Elective (MnTC Goal 3 or 4)**	4
	General Education Elective**	3
<b>Total Credits</b>		<b>19</b>

### 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 course subject VCOM.

\*\* Select General Education electives from any MnTC goal area. See pages 116-118 for MnTC goal areas.

**GRAPHIC DESIGN TECHNOLOGY – DIPLOMA****Fall Semester – First Year**

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

**Spring Semester – First Year**

Course#	Course Title	Credits
VCOM1010	Introduction to Photoshop	2
VCOM1021	Introduction to Photography	3
VCOM1400	Intro to QuarkXPress <i>or</i> VCOM1430	2
VCOM1410	Introduction to Illustrator	2
VCOM1422	Print Processes I	2
COML1400	Introduction to Computers	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>17</b>

**Fall Semester – Second Year**

Course#	Course Title	Credits
VCOM2400	Advanced Photoshop	3
VCOM2415	Advanced Electronic Publishing	3
VCOM2420	Advanced Computer Illustration	3
VCOM2422	Print Processes II	3
VCOM2680	Introduction to Flash	2
VCOM2685	Web Page Construction I	2
<b>Total Credits</b>		<b>16</b>

**Spring Semester – Second Year**

Course#	Course Title	Credits
VCOM2721	Portfolio for Graphic Design	2
VCOM2730	Career Research Skills	1
ENGL1100	Writing and Research Skills	3
	Technical Electives*	7
<b>Total Credits</b>		<b>13</b>

**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 course subject VCOM.*

# MULTIMEDIA AND WEB PAGE DESIGN

Location: Rosemount Campus

Start: Fall or Spring Semester, Full- or Part-Time

## Major Description

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

## Work Environment

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

## Potential Job Titles

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

## Salary Data (salary.com)

- Median (U.S.): \$49,744/year
- 75th percentile (U.S.): \$53,499/year



## MULTIMEDIA AND WEB PAGE DESIGN – A.A.S. DEGREE

### Fall Semester – First Year

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

### Spring Semester – First Year

Course#	Course Title	Credits
VCOM1010	Introduction to Photoshop	2
VCOM1060	Creative Problem Solving	3
VCOM1400	Intro to QuarkXPress <i>or</i> VCOM1430	2
VCOM1410	Introduction to Illustrator	2
	Technical Elective*	2
COML1400	Introduction to Computers	3
	General Education Elective**	4
<b>Total Credits</b>		<b>18</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
VCOM2605	Audio/Video for Multimedia	3
VCOM2650	Multimedia Project Management	2
VCOM2660	3D Modeling and Animation	3
VCOM2680	Introduction to Flash	2
VCOM2685	Web Page Construction I	2
SPEE1020	Interpersonal Communication	3
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>18</b>

### Spring Semester – Second Year

Course#	Course Title	Credits
VCOM2690	Web Page Construction II	3
VCOM2694	Advanced Multimedia Production	2
VCOM2700	Advanced Flash Animation	3
VCOM2722	Portfolio for Multimedia and Web Page Design	2
VCOM2730	Career Research Skills	1
	General Education Electives**	7
<b>Total Credits</b>		<b>18</b>

### 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 course subject VCOM.

\*\* Select General Education electives from any MnTC goal area. See pages 116-118 for MnTC goal areas.

# PHOTOGRAPHIC IMAGING TECHNOLOGY

Location: Rosemount Campus

Start: Fall or Spring Semester, Full- or Part-Time

## 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 specialist. 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
- Retouching Specialist
- Traditional and Digital Printers
- Quality Control Technician
- Digital Asset Management Technician
- Commercial Photographer

## Salary Data

- Average Wage: \$18.60/hour
- Top Earners: \$25.62/hour



## PHOTOGRAPHIC IMAGING TECHNOLOGY – A.A.S. DEGREE

### Fall Semester – First Year

Course#	Course Title	Credits
VCOM1001	Introduction to Visual Communications	2
VCOM1021	Introduction to Photography	3
VCOM1515	Photo Lighting Techniques	2
VCOM1525	Basic Darkroom Techniques	4
	Technical Elective*	2
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>16</b>

### Spring Semester – First Year

Course#	Course Title	Credits
VCOM1006	Color Theory	2
VCOM1010	Introduction to Photoshop	2
VCOM1565	Color Printing Systems	4
VCOM1570	Portrait Photography	2
VCOM1580	Introduction to Digital Imaging	2
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>15</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
VCOM1400	Introduction to QuarkXPress	2
VCOM2510	Commercial Photography	2
VCOM2520	Digital Photography	2
VCOM2551	Digital Studio Workflow I	2
	Technical Elective*	1
ENGL1100	Writing and Research Skills	3
	General Education Elective (MnTC Goal 3 or 4)**	4
<b>Total Credits</b>		<b>16</b>

### Spring Semester – Second Year

Course#	Course Title	Credits
VCOM2552	Digital Studio Workflow II	2
VCOM2581	Photography Portfolio	2
VCOM2605	Audio/Video for Presentation	3
VCOM2705	Career Research Skills	1
	Technical Elective*	2
	General Education Electives**	7
<b>Total Credits</b>		<b>17</b>

**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 course subject VCOM.

\*\* Select General Education electives from any MnTC goal area. See pages 116-118 for MnTC goal areas.

**PHOTOGRAPHIC IMAGING TECHNOLOGY – DIPLOMA****Fall Semester – First Year**

Course#	Course Title	Credits
VCOM1001	Introduction to Visual Communications	2
VCOM1021	Introduction to Photography	3
VCOM1515	Photo Lighting Techniques	2
	Technical Electives*	5
	General Education**	3
<b>Total Credits</b>		<b>15</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
VCOM1010	Introduction to Photoshop	2
VCOM1525	Basic Darkroom Techniques	4
VCOM1565	Color Printing Systems	4
VCOM1570	Portrait Photographer	2
VCOM1580	Introduction to Digital Imaging	2
VCOM2581	Photography Portfolio	2
VCOM2730	Career Research Skills	1
<b>Total Credits</b>		<b>17</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>32</b>
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*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 course subject area VCOM.

\*\* General Education – Select from SPEE1020, COML1400 or ENGL1100.

**DIGITAL IMAGING TECHNICIAN – CERTIFICATE****Fall Semester – First Year**

Course#	Course Title	Credits
VCOM1001	Introduction to Visual Communications	2
VCOM1021	Introduction to Photography	3
VCOM1010	Introduction to Photoshop	2
VCOM1400	Introduction to QuarkXPress	2
VCOM1410	Introduction to Illustrator	2
VCOM1580	Introduction to Digital Imaging	2
	Technical Elective*	1
<b>Total Credits</b>		<b>14</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
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
<b>Total Credits</b>		<b>10</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>24</b>
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*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 course subject area VCOM.

**PHOTOGRAPHER ASSISTANT – CERTIFICATE****Fall Semester – First Year**

<b>Course#</b>	<b>Course Title</b>	<b>Credits</b>
VCOM1021	Introduction to Photography	3
VCOM1360	Photography Workshop	1
VCOM1515	Photo Lighting Techniques	2
VCOM1010	Introduction to Photoshop	2
VCOM1570	Portrait Photography	2
<b>Total Credits</b>		<b>10</b>

**Spring Semester – First Year**

<b>Course#</b>	<b>Course Title</b>	<b>Credits</b>
VCOM2510	Commercial Photography	2
VCOM2520	Digital Photography	2
VCOM2540	The Business of Photography	2
VCOM2580	Photography Portfolio	2
VCOM2730	Career Research Skills	1
<b>Total Credits</b>		<b>9</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>19</b>
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*This is a sample course sequence resulting in a certificate.  
Please consult your program advisor regarding your academic plans.*

# PHOTOGRAPHY



Location: Rosemount Campus

Start: Fall or Spring Semester, Full- or Part-Time

## 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: \$28.32/hour
- Top Earners: \$41.37/hour



## PHOTOGRAPHY – A.S. DEGREE

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

### Fall Semester – First Year

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

### Spring Semester – First Year

Course#	Course Title	Credits
ARTS1100	History of Photography	3
SPEE1020	Interpersonal Communication	3
VCOM1021	Introduction to Photography	3
VCOM1570	Portrait Photography	2
VCOM1580	Introduction to Digital Imaging	2
	Technical Elective*	2
<b>Total Credits</b>		<b>15</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
ENGL1100	Writing and Research Skills	3
VCOM1025	Law and Ethics for VisCom	1
VCOM2510	Commercial Photography	2
VCOM2520	Digital Photography	2
VCOM2551	Digital Studio Workflow I	2
	Technical Elective*	2
	General Education Elective (MnTC Goal 4)**	4
<b>Total Credits</b>		<b>16</b>

### Spring Semester – Second Year

Course#	Course Title	Credits
VCOM2580	Photography Portfolio	2
VCOM2730	Career Research Skills	1
	Technical Electives*	8
	General Education Elective (MnTC Goal 3)**	4
<b>Total Credits</b>		<b>15</b>

**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 course subjects ENTR and VCOM.

\*\* See General Education A.S. degree requirements on page 115.

# WOOD FINISHING TECHNOLOGY

Location: Rosemount Campus  
Start: Fall Semester, Full-Time

## 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 refinishing shops. They may also specialize in the restoration of antique furniture, clocks, radios and other items. Commercial finishing technicians will find employment with any furniture manufacturer.

## Potential Job Titles

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

## Salary Data

- Average Wage: \$16.83/hour
- Top Earners: \$23.16/hour

## WOOD FINISHING TECHNOLOGY – DIPLOMA

### Fall Semester – First Year

Course#	Course Title	Credits
WOOD1004	Woodworking	3
WOOD1007	Methods of Fastening	3
WOOD1012	Color Theory	3
WOOD1015	Spot Repair I	3
WOOD1019	Spot Repair II	5
<b>Total Credits</b>		<b>17</b>

### Spring Semester – First Year

Course#	Course Title	Credits
WOOD1010	Wood and Finishing Technology	5
WOOD1021	Wood Refinishing	6
WOOD1026	Advanced Finishing Techniques	5
WOOD1032	Antique Furniture Conservation	3
<b>Total Credits</b>		<b>19</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>36</b>
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*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***Fall Semester – First Year**

Course#	Course Title	Credits
WOOD1012	Color Theory	3
WOOD1015	Spot Repair I	3
WOOD1019	Spot Repair II	5
<b>Total Credits</b>		<b>11</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>11</b>
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*This is a sample course sequence resulting in a certificate.  
Please consult your program advisor regarding your academic plans.*

**FURNITURE SERVICE TECHNICIAN II – CERTIFICATE***Pending MnSCU Board Approval***Fall Semester – First Year**

Course#	Course Title	Credits
WOOD1010	Wood and Finishing Technology	5
WOOD1012	Color Theory	3
WOOD1015	Spot Repair I	3
WOOD1019	Spot Repair II	5
WOOD1032	Antique Furniture Conservation	3
<b>Total Credits</b>		<b>19</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>19</b>
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*This is a sample course sequence resulting in a certificate.  
Please consult your program advisor regarding your academic plans.*



# HEALTH AND HUMAN SERVICES

## PROGRAMS OF STUDY

<b>Child Development</b>	<b>71</b>
<b>Dental Assistant</b>	<b>74</b>
<b>Exercise and Sport Science</b>	<b>76</b>
<b>Medical Assistant</b>	<b>80</b>
<b>Nursing Assistant</b>	<b>82</b>
<b>Practical Nursing</b>	<b>83</b>

## 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 provide courses leading to MN State Certification for Emergency Medical Technicians (EMT) and First Responders. See [www.dctc.edu](http://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



Daytime Programs



Evening Programs



Online Programs

*Unless otherwise specified, all salary data is sourced from [iseek.org](http://iseek.org).*

## ACADEMIC FACULTY

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### Brenda Arneson

#### Nursing Assistant

A.A.S., Excelsior College, New York

651-423-8234 | [brenda.arneson@dctc.edu](mailto:brenda.arneson@dctc.edu)

### Jill Behnke

#### Child Development

B.S., University of Wisconsin-Stout

M.S., University of Wisconsin-Stout

651-423-8398 | [jill.behnke@dctc.edu](mailto:jill.behnke@dctc.edu)

### Dawn Braa

#### Child Development

B.S., Minnesota State University Mankato

M.A., University of Phoenix

651-423-8315 | [dawn.braa@dctc.edu](mailto:dawn.braa@dctc.edu)

### Carol Buttz

#### Practical Nursing

B.S., College of St. Francis

651-423-8467 | [carol.buttz@dctc.edu](mailto:carol.buttz@dctc.edu)

### Jean Carson

#### Practical Nursing

B.S., Bethel College

651-423-8374 | [jean.carson@dctc.edu](mailto:jean.carson@dctc.edu)

### Patricia Kujala

#### Practical Nursing

B.S.N., Metropolitan State University

M.S.N., Winona State University

651-423-8220 | [patricia.kujala@dctc.edu](mailto:patricia.kujala@dctc.edu)

### Patrice Nadeau

#### Medical Assistant

B.S., University of Minnesota

M.S., University of North Dakota

651-423-8355 | [patrice.nadeau@dctc.edu](mailto:patrice.nadeau@dctc.edu)

### Margaret Noirjean

#### Medical Assistant

B.S., Adelphi University

651-423-8540 | [margaret.noirjean@dctc.edu](mailto:margaret.noirjean@dctc.edu)

### Jaime Pieper

#### Dental Assistant

Diploma, Bemidji Technical Institute

A.S., Normandale Community College

B.A., Metropolitan State University

M.Ed., Waldon University

651-423-8543 | [jaime.pieper@dctc.edu](mailto:jaime.pieper@dctc.edu)

### Diana Sullivan

#### Dental Assistant

B.A., Metropolitan State University

M.S., Cardinal Stritch College

651-423-8483 | [diana.sullivan@dctc.edu](mailto:diana.sullivan@dctc.edu)

### Sara Woodward

#### Exercise and Sport Science

B.S., University of Minnesota

M.A., University of Minnesota

Ph.D. (ABD), University of Minnesota

651-423-8430 | [sara.woodward@dctc.edu](mailto:sara.woodward@dctc.edu)

### DiAnn Zimmerman

#### Practical Nursing

B.S.N., Mary College

M.S.N., University of Mary

651-423-8311 | [diann.zimmerman@dctc.edu](mailto:diann.zimmerman@dctc.edu)

## ADVISOR

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### Alison Tauer

B.A., College of St. Benedict

651-423-8384 | [alison.tauer@dctc.edu](mailto:alison.tauer@dctc.edu)

## DEAN

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### Sherralyn Cox

B.S., University of Louisville

M.S., Western Kentucky University

Ph.D., University of Kentucky

651-423-8235 | [sherralyn.cox@dctc.edu](mailto:sherralyn.cox@dctc.edu)

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

*— Hippocrates —*

# CHILD DEVELOPMENT

Location: Rosemount Campus

Start: Fall or Spring Semester, Full- or Part-Time

## 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 Specialist
- Preschool Teacher
- Day Care Worker
- Family Day Care Provider
- Child Care Development Specialist
- Nanny/Household Manager

## Salary Data

### Child Care

- Average Wage: \$10.44/hour
- Top Earners: \$13.83/hour

### Preschool Teacher

- Average Wage: \$15.08/hour
- Top Earners: \$20.92/hour



## CHILD DEVELOPMENT – A.S. DEGREE

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

### Fall Semester - First Year

Course#	Course Title	Credits
CDEV1200	Professional Relations in Early Childhood Careers	3
CDEV1210	Foundations of Child Development I	3
CDEV1220	Child Safety, Health, and Nutrition	4
CDEV1230	Guidance and the Early Childhood Environment	4
	Technical Elective*	3
<b>Total Credits</b>		<b>17</b>

### Spring Semester - First Year

Course#	Course Title	Credits
CDEV1320	Foundations of Child Development II	4
CDEV1340	Planning and Implementing Curriculum	3
CDEV2320	Profiles of the Exceptional Child	3
COML1400	Introduction to Computers	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>16</b>

### Summer Session - First Year

Course#	Course Title	Credits
CDEV1510	Internship	3
<b>Total Credits</b>		<b>3</b>

### Fall Semester - Second Year

Course#	Course Title	Credits
ENGL1100	Writing and Research Skills	3
	General Education Elective (MnTC Goal 4)**	4
	General Education Elective (MnTC Goal 3)**	4
	General Education Elective**	4
<b>Total Credits</b>		<b>15</b>

### Spring Semester - Second Year

Course#	Course Title	Credits
CDEV2600	Professional Leadership	3
	General Education Electives**	9
<b>Total Credits</b>		<b>12</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>63</b>
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*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 course subject CDEV.

\*\* See General Education A.S. degree requirements on page 115.

**CHILD DEVELOPMENT – A.A.S. DEGREE****Fall Semester - First Year**

Course#	Course Title	Credits
CDEV1200	Professional Relations in Early Childhood Careers	3
CDEV1210	Foundations of Child Development I	3
CDEV1220	Child Safety, Health, and Nutrition	4
CDEV1230	Guidance and the Early Childhood Environment	4
	Technical Elective*	2
<b>Total Credits</b>		<b>16</b>

**Spring Semester - First Year**

Course#	Course Title	Credits
CDEV1320	Foundations of Child Development II	4
CDEV1340	Planning and Implementing Curriculum	3
CDEV2320	Profiles of the Exceptional Child	3
	Technical Electives*	4
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>17</b>

**Summer Session - First Year**

Course#	Course Title	Credits
CDEV1510	Internship	3
<b>Total Credits</b>		<b>3</b>

**Fall Semester - Second Year**

Course#	Course Title	Credits
CDEV2330	Advanced Child Guidance	3
CDEV2640	Program Planning	3
COML1400	Introduction to Computers	3
ENGL1100	Writing and Research Skills	3
	General Education Elective (MnTC Goal 3 or 4)**	3
<b>Total Credits</b>		<b>15</b>

**Spring Semester - Second Year**

Course#	Course Title	Credits
CDEV2600	Professional Leadership	3
CDEV2840	Practicum	3
	General Education Electives**	8
<b>Total Credits</b>		<b>14</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>65</b>
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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.*

\* Technical Electives may be selected from course subject CDEV.

\*\* Select General Education electives from any MnTC goal area.  
See pages 116-118 for MnTC goal areas.

**CHILD DEVELOPMENT – DIPLOMA****Fall Semester – First Year**

Course#	Course Title	Credits
CDEV1200	Professional Relations in Early Childhood Careers	3
CDEV1210	Foundations of Child Development I	3
CDEV1220	Child Safety, Health, and Nutrition	4
CDEV1230	Guidance and the Early Childhood Environment	4
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>17</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
CDEV1320	Foundations of Child Development II	4
CDEV1340	Planning and Implementing Curriculum	3
CDEV1510	Internship	3
COML1400	Introduction to Computers	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>16</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>33</b>
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*This is a sample course sequence resulting in an diploma.  
Please consult your program advisor regarding your academic plans.*

**CHILD DEVELOPMENT – CERTIFICATE****Fall Semester - First Year**

Course#	Course Title	Credits
CDEV1200	Professional Relations in Early Childhood Careers	3
CDEV1210	Foundations of Child Development I	3
CDEV1220	Child Safety, Health, and Nutrition	4
CDEV1230	Guidance and the Early Childhood Environment	4
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>17</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>17</b>
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*This is a sample course sequence resulting in an certificate.  
Please consult your program advisor regarding your academic plans.*



# DENTAL ASSISTANT

Location: Rosemount Campus  
Start: Fall Semester, Full-Time

## Major Description

This program prepares students for employment in dentistry. Students study ways to control and prevent dental disease. They also learn how to teach their patients preventive care. Trained to expose and process dental X-ray films, students also master a variety of chairside skills and expanded functions delegated by the State Board of Dentistry.

## Work Environment

Dental assistants provide direct patient care working under the direction of a dentist. Potential employers include dental practices in both general and specialty offices that are clean, modern and well-lit. Work areas are near the dental chair to permit efficient assistance to the dentist.

## Potential Job Titles

- Certified Dental Assistant
- Registered Dental Assistant
- Expanded Duty Dental Assistant
- Restorative Dental Assistant

## Salary Data

- Average Wage: \$20.92/hour
- Top Earners: \$25.46/hour



## DENTAL ASSISTANT – A.A.S. DEGREE

### Fall Semester - First Year

Course#	Course Title	Credits
DENT1100	Dental Science	4
DENT1110	Pre-Clinical Dental Assisting	3
DENT1120	Dental Health	2
DENT1130	Chairside Assisting I	3
DENT1140	Dental Materials	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>18</b>

### Spring Semester - First Year

Course#	Course Title	Credits
DENT1250	Radiology	5
DENT1260	Expanded Functions	5
DENT1270	Chairside Assisting II	3
DENT1280	Dental Practice Management	2
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>18</b>

### Summer Session - First Year

Course#	Course Title	Credits
DENT2970	Externship	8
	General Education Elective**	4
<b>Total Credits</b>		<b>12</b>

### Fall Semester - Second Year

Course#	Course Title	Credits
ENGL1100	Writing and Research Skills	3
	General Education Elective (MnTC Goal 3 or 4)**	4
	General Education Electives**	9
<b>Total Credits</b>		<b>16</b>

**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 116-118 for MnTC goal areas.*

**DENTAL ASSISTANT – DIPLOMA****Fall Semester - First Year**

Course#	Course Title	Credits
COML1400	Introduction to Computers	3
DENT1100	Dental Science	4
DENT1110	Pre-Clinical Dental Assisting	3
DENT1120	Dental Health	2
DENT1130	Chairside Assisting I	3
DENT1140	Dental Materials	3
<b>Total Credits</b>		<b>18</b>

**Spring Semester - First Year**

Course#	Course Title	Credits
DENT1250	Radiology	5
DENT1260	Expanded Functions	5
DENT1270	Chairside Assisting II	3
DENT1280	Dental Practice Management	2
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>18</b>

**Summer Session - First Year**

Course#	Course Title	Credits
DENT2970	Externship	8
<b>Total Credits</b>		<b>8</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>44</b>
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*This is a sample course sequence resulting in a diploma.  
Please consult your program advisor regarding your academic plans.*

# EXERCISE AND SPORT SCIENCE

Location: Rosemount Campus

Start: Fall or Spring Semester, Full- or Part-Time

## 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 rehabilitation centers.

## Potential Job Titles

- Sports Trainer
- Athletic Trainer
- Fitness Specialist
- Physical Trainer
- Sports Athletic Trainer
- Sport Scientist

## Salary Data

- Average Wage: \$45,791/year
- Top Earners: \$71,833/year



## EXERCISE AND SPORT SCIENCE – A.S. DEGREE

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

### Fall Semester – First Year

Course#	Course Title	Credits
EXER1000	Introduction to Human Performance Studies	3
EXER1020	Strength Training	2
EXER1065	Psychology of Sport and Performance	3
BIOL1500	General Biology	4
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>15</b>

### Spring Semester – First Year

Course#	Course Title	Credits
EXER1015	Personal Health and Wellness	3
EXER1025	Physical Conditioning	2
	Technical Elective*	3
ENGL1100	Writing and Research Skills	3
PSYC1100	General Psychology	3
	General Education Elective**	3
<b>Total Credits</b>		<b>17</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
BIOL2000	Anatomy and Physiology I	4
	Technical Electives*	6
COML1400	Introduction to Computers	3
SOCY1110	Intro to Sociology OR	3
SOCY1010	Marriage & Family	
<b>Total Credits</b>		<b>16</b>

### Spring Semester – Second Year

Course#	Course Title	Credits
EXER2295	Social and Ethical Aspects of Sport	3
BIOL2010	Anatomy and Physiology II	4
	Technical Electives*	4
INTS1010	Job Search Skills	1
	General Education Elective (MnTC Goal 3 or 4)**	4
<b>Total Credits</b>		<b>16</b>

**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 course subject EXER.

\*\* See General Education A.S. degree requirements on page 115.

**EXERCISE AND SPORT SCIENCE – A.A.S. DEGREE****Fall Semester – First Year**

Course#	Course Title	Credits
BIOL1500	General Biology	4
EXER1000	Introduction to Human Performance Studies	3
EXER1020	Strength Training	2
EXER1065	Psychology of Sport and Performance	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>15</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
ENGL1100	Writing and Research Skills	3
EXER1015	Personal Health and Wellness	3
EXER1025	Physical Conditioning	2
EXER1050	Nutrition for Health & Human Performance	3
	Technical Elective*	3
PSYC1100	General Psychology	3
<b>Total Credits</b>		<b>17</b>

**Fall Semester – Second Year**

Course#	Course Title	Credits
BIOL2000	Anatomy and Physiology I	4
EXER2020	Personal Training and Exercise Leadership I	2
EXER2090	Exercise for Special Populations	2
EXER2115	Applied Exercise Physiology	3
	Technical Elective*	2
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>16</b>

**Spring Semester – Second Year**

Course#	Course Title	Credits
BIOL2010	Anatomy and Physiology II	4
EXER2060	Personal Training and Exercise Leadership II	2
EXER2295	Social and Ethical Aspects of Sport	3
EXER2975	Practicum	3
	Technical Elective*	3
INTS1010	Job Seeking Skills	1
<b>Total Credits</b>		<b>16</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>64</b>
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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.*

\* Technical Electives may be selected from course subject EXER.

**PERSONAL TRAINING – CERTIFICATE****Fall Semester - First Year**

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

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>16</b>
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*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.

**GROUP FITNESS – CERTIFICATE****Fall Semester - First Year**

Course#	Course Title	Credits
EXER1020	Strength Training	2
EXER1065	Psychology of Sport and Performance	3
EXER2020	Personal Training and Exercise Leadership I	2
EXER2250	Group Fitness Instruction	2
EXER2975	Practicum	2
HEAL1000†	First Aid/CPR	1
HEAL1101‡	Anatomy and Physiology	4
<b>Total Credits</b>		<b>16</b>

**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 AND FITNESS – CERTIFICATE****Fall Semester - First Year**

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

**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.

**Fall Semester - First Year**

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

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>16</b>
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*This is a sample course sequence resulting in an certificate.  
Please consult your program advisor regarding your academic plans.*

**COMMUNITY COACHING – CERTIFICATE****Fall Semester - First Year**

Course#	Course Title	Credits
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
HEAL1010	CPR for the Professional Rescuer	1
HEAL1020	Advanced First Aid	1
<b>Total Credits</b>		<b>16</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>16</b>
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*This is a sample course sequence resulting in an certificate.  
Please consult your program advisor regarding your academic plans.*

# MEDICAL ASSISTANT

Location: Rosemount Campus

Start: Fall Semester for On-Campus Program or Spring Semester for Online Enhanced Program, Full-Time Recommended

## 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 doctors with examinations and treatments, take medical histories, perform diagnostic tests, expose X-ray films, sterilize instruments and supplies, assist with minor surgery and administer medications.

## Work Environment

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

## Potential Job Titles

- Certified Medical Assistant
- Medical Assistant
- Clinical Assistant

## Salary Data

- Average Wage: \$16.37/hour
- Top Earners: \$20.46/hour



## MEDICAL ASSISTANT – A.A.S. DEGREE

### Fall Semester – First Year

Course#	Course Title	Credits
HEAL1101	Anatomy and Physiology	4
HEAL1150	Health Career Mathematics	1
HEAL1502	Medical Terminology	2
MDAS1122	Laboratory Skills I	5
MDAS1130	Clinical Procedures I	3
MDAS1140	Phlebotomy	1
OFFC1130	MS Word I	2
<b>Total Credits</b>		<b>18</b>

### Spring Semester – First Year

Course#	Course Title	Credits
MDAS1210	Disease/Medical Treatment & Nutrition	3
MDAS1222	Laboratory Skills II	4
MDAS1230	Clinical Procedures II	3
MDAS1270	Administrative Procedures	3
MDAS1700	Pharmacology for Medical Assistants	3
<b>Total Credits</b>		<b>16</b>

### Summer Session - First Year

Course#	Course Title	Credits
MDAS1250	Fundamentals of Radiographic Imaging	2
MDAS2970	Externship	6
<b>Total Credits</b>		<b>8</b>

### Fall Semester - Second Year

Course#	Course Title	Credits
COML1400	Introduction to Computers	3
ENGL1100	Writing and Research Skills	3
SPEE1020	Interpersonal Communication	3
	General Education Elective**	3
<b>Total Credits</b>		<b>12</b>

### Spring Semester - Second Year

Course#	Course Title	Credits
	General Education Elective (MnTC Goal 3 or 4)**	4
	General Education Elective**	4
<b>Total Credits</b>		<b>8</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>62</b>
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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 116-118 for MnTC goal areas.*

**MEDICAL ASSISTANT – DIPLOMA****Fall Semester - First Year**

Course#	Course Title	Credits
HEAL1101	Anatomy and Physiology	4
HEAL1150	Health Career Mathematics	1
HEAL1502	Medical Terminology	2
MDAS1122	Laboratory Skills I	5
MDAS1130	Clinical Procedures I	3
MDAS1140	Phlebotomy	1
OFFC1130	MS Word I	2
<b>Total Credits</b>		<b>18</b>

**Spring Semester - First Year**

Course#	Course Title	Credits
MDAS1210	Disease/Medical Treatment & Nutrition	3
MDAS1222	Laboratory Skills II	4
MDAS1230	Clinical Procedures II	3
MDAS1270	Administrative Procedures	3
MDAS1700	Pharmacology for Medical Assistants	3
<b>Total Credits</b>		<b>16</b>

**Summer Session - First Year**

Course#	Course Title	Credits
MDAS1250	Fundamentals of Radiographic Imaging	2
MDAS2970	Externship	6
<b>Total Credits</b>		<b>8</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>42</b>
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*This is a sample course sequence resulting in a diploma.  
Please consult your program advisor regarding your academic plans.*

# NURSING ASSISTANT

Location: Rosemount Campus

Start: Fall, Spring or Summer Semester

## 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: \$14.46/hour
- Top Earners: \$18.38/hour

## NURSING ASSISTANT – CERTIFICATE

### Fall Semester - First Year

Course#	Course Title	Credits
HEAL1060	Nursing Assistant	5
<b>Total Credits</b>		<b>5</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>5</b>
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# PRACTICAL NURSING

Location: Rosemount Campus

Start: Fall or Spring Semester, Full- or Part-Time

## 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: \$20.72/hour
- Top Earners: \$25.13/hour



## PRACTICAL NURSING – A.A.S. DEGREE

*Pending MnSCU Board Approval*

### Pre-Nursing

Course#	Course Title	Credits
HEAL1505	Medical Terminology for Nurses	1
BIOL1500	General Biology	4
COML	Computer Skills	1
PSYC1350	Lifespan Development	4
SPEE1020	Interpersonal Communication	3
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>16</b>

### Fall Semester – First Year

Course#	Course Title	Credits
HEAL1150	Health Career Math	1
HEAL1400	Nutrition and Diet Therapy	2
PNSG1000	Foundations of Nursing Practice I	2
BIOL1600	Microbiology	4
BIOL2000	Anatomy and Physiology I	4
PHIL1350	Medical Ethics	3
<b>Total Credits</b>		<b>16</b>

### Summer Session - First Year

Course#	Course Title	Credits
BIOL2010	Anatomy and Physiology II	4
<b>Total Credits</b>		<b>4</b>

### Spring Semester – First Year

Course#	Course Title	Credits
PNSG1100	Foundations of Nursing Practice II	2
PNSG1350	Pharmacology	2
PNSG1400	Adult Health Nursing I	4
PNSG1500	Adult Health Nursing II	3
PNSG1530	Beginning Clinical	3
PNSG1540	Clinical Practice I	2
<b>Total Credits</b>		<b>16</b>

### Fall Semester - Second Year

Course#	Course Title	Credits
PNSG1750	Mental Health Nursing	2
PNSG1560	Clinical Practice II	3
PNSG1570	Clinical Practice III	2
PNSG1580	Clinical Practice IV	2
PNSG1800	Family Nursing	2
<b>Total Credits</b>		<b>11</b>

**TOTAL PROGRAM REQUIREMENTS 63**

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

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

**PRACTICAL NURSING – DIPLOMA***Pending MnSCU Board Approval***Pre-Nursing**

Course#	Course Title	Credits
HEAL1505	Medical Terminology for Nurses	1
COML	Computer Skills	1
PSYC1350	Lifespan Development	4
SPEE1020	Interpersonal Communication	3
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>12</b>

**Fall Semester – First Year**

Course#	Course Title	Credits
HEAL1101	Anatomy and Physiology	4
HEAL1150	Health Career Math	1
HEAL1400	Nutrition and Diet Therapy	2
PNSG1000	Foundations of Nursing Practice I	2
PHIL1350	Medical Ethics	3
<b>Total Credits</b>		<b>12</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
PNSG1100	Foundations of Nursing Practice II	2
PNSG1350	Pharmacology	2
PNSG1400	Adult Health Nursing I	4
PNSG1500	Adult Health Nursing II	3
PNSG1530	Beginning Clinical	3
PNSG1540	Clinical Practice I	2
<b>Total Credits</b>		<b>16</b>

**Fall Semester - Second Year**

Course#	Course Title	Credits
PNSG1750	Mental Health Nursing	2
PNSG1560	Clinical Practice II	3
PNSG1570	Clinical Practice III	2
PNSG1580	Clinical Practice IV	2
PNSG1800	Family Nursing	2
<b>Total Credits</b>		<b>11</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>51</b>
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*This is a sample course sequence resulting in a diploma.  
Please consult your program advisor regarding your academic plans.*

# TECHNICAL CAREERS



## PROGRAMS OF STUDY

<b>Audio Visual Installation Technology</b>	<b>87</b>
<b>Biomedical Equipment Technology</b>	<b>88</b>
<b>Civil Engineering Technology</b>	<b>90</b>
<b>Concrete and Masonry</b>	<b>91</b>
<b>Electrical Construction and Maintenance</b>	<b>93</b>
<b>Electrical Lineworker</b>	<b>95</b>
<b>Nanoscience Technology</b>	<b>97</b>
<b>Welding Technology</b>	<b>98</b>

## 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



Daytime Programs



Evening Programs



Online Programs

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

## FACULTY

---

### Steve Addy

Electrical Lineworker

*Credentialed*

651-423-8252 | [steven.addy@dctc.edu](mailto:steven.addy@dctc.edu)

### Steven Bezanson

Biomedical Equipment Technology

*B.S., National College of Business*

651-423-8378 | [steve.bezanson@dctc.edu](mailto:steve.bezanson@dctc.edu)

### Michael Buck

Electrical Construction and Maintenance Technology

*A.S., Dunwoody College*

651-423-8494 | [michael.buck@dctc.edu](mailto:michael.buck@dctc.edu)

### Paul Geisler

Concrete and Masonry

*Certificate, Milwaukee Technical College*

*Certificate, Fennimore Technical College*

651-423-8218 | [paul.geisler@dctc.edu](mailto:paul.geisler@dctc.edu)

### Ronald Gruenes

Electrical Construction and Maintenance Technology

*Diploma, St. Cloud Technical College*

651-423-8563 | [ronald.gruenes@dctc.edu](mailto:ronald.gruenes@dctc.edu)

### Bruce Hansberger

Electrical Construction and Maintenance Technology

*B.A., University of Minnesota*

651-423-8432 | [bruce.hansberger@dctc.edu](mailto:bruce.hansberger@dctc.edu)

### Deb Newberry

Nanoscience Technology

*B.S., University of North Dakota*

*M.S., University of North Dakota*

651-423-8328 | [deb.newberry@dctc.edu](mailto:deb.newberry@dctc.edu)

### Jerry Rollag

Welding Technology

*Credentialed*

651-423-8314 | [jerry.rollag@dctc.edu](mailto:jerry.rollag@dctc.edu)

### Keith Sebion

Electrical Lineworker

*Diploma, Dakota County Technical College*

651-423-8641 | [keith.sebion@dctc.edu](mailto:keith.sebion@dctc.edu)

## ADVISOR

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### Jennifer Robinson-West

*B.A., Hunter College of the City of New York*

651-423-8217 | [jennifer.west@dctc.edu](mailto:jennifer.west@dctc.edu)

## DEAN

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### Mike Opp

*B.S.E., Dakota State University*

*M.S., Northern State University*

*E.d.S., University of South Dakota*

*E.d.D., University of South Dakota*

651-423-8232 | [mike.opp@dctc.edu](mailto:mike.opp@dctc.edu)

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

*— Eric Hoffer —*

# AUDIO VISUAL INSTALLATION TECHNOLOGY

Location: Rosemount Campus  
Start: Fall Semester, Full-Time

## Major Description

This program brings together previously separate audio visual technologies and systems in home and commercial settings, including integrated controls, computer/home networks, communications, lighting and energy management, entertainment, security, health and safety. Professional AVIT technicians merge various skill sets and abilities, including computer networking, audio/video, HVAC, home security, appliances and structural wiring in contrast with service specialists who possess skills in one particular area.

## Work Environment

InfoComm International reports that the audio-visual technology industry is "one of the fastest-growing, most dynamic industries in the world" with North American products and services exceeding \$25 billion per year and nationwide job growth for AV equipment technicians approaching 25 percent through 2016.

## Potential Job Titles

- Audio Installer
- Audio Video Mechanic
- Electronic Sales and Service Technician
- Video System Repairer
- Stereo Equipment Installer

## Salary Data

- Average Wage: \$18.13
- Top Earners: \$27.03

## AUDIO VISUAL INSTALLATION TECHNOLOGY – DIPLOMA

*Pending DCTC's Academic Affairs and Standards Council Approval*

### Fall Semester - First Year

Course#	Course Title	Credits
AVIT1100	The Audio Visual Electronics Essentials	3
AVIT 1110	AV Industry Essentials	3
AVIT 1120	Audio Video Concepts	4
AVIT 1130	Media System Construction/Installation I	4
AVIT 1140	Media System Networking	3
<b>Total Credits</b>		<b>17</b>

### Spring Semester - First Year

Course#	Course Title	Credits
AVIT 1200	Home Integration/Security	3
AVIT 1210	Media System Code, Safety, and Plans	3
AVIT 1220	Media System Construction/Installation II	4
AVIT 1230	System Design	2
AVIT 2970	Internship	1
	General Education Electives** (Goal #7)	6
<b>Total Credits</b>		<b>19</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>36</b>
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*This is a sample course sequence resulting in a diploma.  
Please consult your program advisor regarding your academic plans.*

*\*\* Select General Education elective from MnTC Goal 7 on pages 118.*

# BIOMEDICAL EQUIPMENT TECHNOLOGY

Location: Rosemount Campus

Start: Fall Semester, Full-Time Recommended

## 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 complexity to ensure compliance with established performance and safety standards. Graduates are qualified to maintain life support equipment found in hospitals, medical centers and research laboratories.

## Work Environment

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

## Potential Job Titles

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

## Salary Data

- Average Wage: \$26.75/hour
- Top Earners: \$41.92/hour



## BIOMEDICAL EQUIPMENT TECHNOLOGY – A.A.S. DEGREE

### Fall Semester - First Year

Course#	Course Title	Credits
BMET1112	DC Electricity	3
BMET1116	Solid State Electronics and Lab	5
BMET1123	AC Electricity	3
ISTC1040	Network Systems I	3
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>17</b>

### Spring Semester - First Year

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

### Fall Semester - Second Year

Course#	Course Title	Credits
BMET1121	Administrative Functions	3
BMET1241	Mechanical Systems	3
HEAL1502	Medical Terminology	2
ISTC2010	Network Systems III	3
BIOL1300	Introduction to Physiological Anatomy	4
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>18</b>

### Spring Semester - Second Year

Course#	Course Title	Credits
BMET1110	Introduction to Biomedical Technology	3
BMET1221	Instrumentation I	4
BMET1231	Instrumentation II	4
BMET2970	Biomedical Equipment Tech. Internship	2
EMRG1017	First Responder	3
ISTC2015	Network Systems IV	3
<b>Total Credits</b>		<b>19</b>

### 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.

**Fall Semester - First Year**

Course#	Course Title	Credits
BMET1121	Administrative Functions	3
BMET1136	Managing Customer Satisfaction in the Health Care Environment	1
BMET1241	Mechanical Systems	3
HEAL1502	Medical Terminology	2
BIOL1300	Introduction to Physiological Anatomy	4
<b>Total Credits</b>		<b>13</b>

**Spring Semester - First Year**

Course#	Course Title	Credits
BMET1110	Introduction to Biomedical Technology	3
BMET1221	Instrumentation I	4
BMET1231	Instrumentation II	4
BMET2970	Biomedical Equipment Tech. Internship	2
<b>Total Credits</b>		<b>13</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>26</b>
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*This is a sample course sequence resulting in an certificate.  
Please consult your program advisor regarding your academic plans.*

# CIVIL ENGINEERING TECHNOLOGY

Location: Hennepin Technical College Eden Prairie Campus Fall 2009 / DCTC Rosemount Campus Fall 2010

Start: Fall Semester, Full-Time

## 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 management and inspection during the construction process, including the planning and design 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 Designer
- Engineering Technical Analyst
- Engineering Technician
- Industrial Engineering Technician
- Mechanical Engineering Technician
- Facility Planner

## Salary Data

- Average Wage: \$25.99/hour
- Top Earners: \$34.92/hour

## CIVIL ENGINEERING TECHNOLOGY – A.A.S. DEGREE

### First Year

Course#	Course Title	Credits
	Civil Engineering Careers	1
	Introduction to CADD	3
	Civil Engineering Technology Drafting	4
	Beginning Surveying	3
	Intermediate Surveying	4
	GPS, GIS, and Construction Staking	5
	Internship	3
	Intro to Natural Resources	3
	General Education**	10
<b>Total Credits</b>		<b>36</b>

### Second Year

Course#	Course Title	Credits
	Contract Administration and Project Management	4
	Construction Inspection	3
	Soil Mechanics Survey	4
	Project Design: Utilities Design, Road Design, Grading	5
	Materials Testing and Specifications	4
	Hydrology and Storm Water Management	3
	Estimating	3
	General Education**	10
<b>Total Credits</b>		<b>36</b>

**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 115.*



# CONCRETE AND MASONRY

Location: Rosemount Campus  
Start: Fall Semester, Full-Time

## 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: \$30.31/hour
- Top Earners: \$40.42/hour



## CONCRETE AND MASONRY – A.A.S. DEGREE

### Fall Semester - First Year

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

### Spring Semester - First Year

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

### Fall Semester - Second Year

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

### Spring Semester - Second Year

Course#	Course Title	Credits
SMGT1028	Management Effectiveness	3
SMGT1033	Business Law and Ethics	3
ENGL1100	Writing and Research Skills	3
	General Education Electives**	7
<b>Total Credits</b>		<b>16</b>

### 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 116-118 for MnTC goal areas.*

**CONCRETE AND MASONRY – DIPLOMA****Fall Semester - First Year**

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

**Spring Semester - First Year**

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

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>33</b>
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*This is a sample course sequence resulting in a diploma.  
Please consult your program advisor regarding your academic plans.*

# ELECTRICAL CONSTRUCTION AND MAINTENANCE TECHNOLOGY

Location: Rosemount Campus

Start: Fall or Spring Semester, Full-Time Recommended

## 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
- Electric Wire

## Salary Data

- Average Wage: \$30.73/hour
- Top Earners: \$40.10/hour



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

### Fall Semester – First Year

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

### Spring Semester – First Year

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

### Summer Session – First Year

Course#	Course Title	Credits
ENGL1100	Writing and Research Skills	3
	General Education Elective**	4
<b>Total Credits</b>		<b>7</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
ELEC2110	Electrical Apparatus Theory	3
ELEC2120	Electrical Apparatus Lab	6
ELEC2131	Programmable Logic Controllers Theory	2
ELEC2141	Programmable Logic Controllers Lab	4
	General Education Elective**	3
<b>Total Credits</b>		<b>18</b>

### Spring Semester – Second Year

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

### Summer Session – Second Year

Course#	Course Title	Credits
	General Education Elective (MnTC Goal 3 or 4)**	4
<b>Total Credits</b>		<b>4</b>

### TOTAL PROGRAM REQUIREMENTS

**83**

*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 116-118 for MnTC goal areas.*

## ELECTRICAL CONSTRUCTION & MAINTENANCE TECHNOLOGY – DIPLOMA

### Fall Semester – First Year

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

### Spring Semester – First Year

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

### Fall Semester – Second Year

Course#	Course Title	Credits
ELEC2110	Electrical Apparatus Theory	3
ELEC2120	Electrical Apparatus Lab	6
ELEC2131	Programmable Logic Controllers Theory	2
ELEC2141	Programmable Logic Controllers Lab	4
ENGL1100	Writing and Research Skills (or ENGL1102)	3
<b>Total Credits</b>		<b>18</b>

### Spring Semester – Second Year

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

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>72</b>
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*This is a sample course sequence resulting in an diploma.  
Please consult your program advisor regarding your academic plans.*

# ELECTRICAL LINEMAN

Location: Rosemount Campus

Start: July, Full-Time

## Major Description

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

## Work Environment

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

## Potential Job Titles

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

## Salary Data

- Average Wage: \$31.78/hour
- Top Earners: \$41.12/hour



## ELECTRICAL LINEMAN – A.A.S. DEGREE

### Summer Session – First Year

Course#	Course Title	Credits
ELLW1110	Distribution I	4
ELLW1120	Utility Equipment and Tools	2
<b>Total Credits</b>		<b>6</b>

### Fall Semester – First Year

Course#	Course Title	Credits
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
<b>Total Credits</b>		<b>19</b>

### Spring Semester – First Year

Course#	Course Title	Credits
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
<b>Total Credits</b>		<b>18</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
SPEE1020	Interpersonal Communication	3
ENGL1100	Writing and Research Skills	3
	General Education Elective (MnTC Goal 3 or 4)**	4
	General Education Electives**	7
<b>Total Credits</b>		<b>17</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>60</b>
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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 116-118 for MnTC goal areas.*

**ELECTRICAL LINeworker – DIPLOMA****Summer Session – First Year**

Course#	Course Title	Credits
ELLW1110	Distribution I	4
ELLW1120	Utility Equipment and Tools	2
<b>Total Credits</b>		<b>6</b>

**Fall Semester – First Year**

Course#	Course Title	Credits
ELLW1130	Basic Electricity	2
ELLW1140	Distribution IIA	4
ELLW1141	Distribution IIB	4
ELLW1150	Construction Planning and Practices	2
ELLW1160	Transformers I	4
	General Education**	3
<b>Total Credits</b>		<b>19</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
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
<b>Total Credits</b>		<b>18</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>43</b>
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*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 ENGL1100.*

# NANOSCIENCE TECHNOLOGY

Location: Rosemount Campus (Semester 1-3), University of Minnesota (Capstone Semester 4)

Start: Fall Semester, Full- or Part-Time

## 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

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



## NANOSCIENCE TECHNOLOGY – A.A.S. DEGREE

### Fall Semester – First Year

Course#	Course Title	Credits
NANO1100	Fundamentals of Nanoscience I	3
PHYS1100	College Physics I	4
BIOL1500	General Biology	4
COML1400	Introduction to Computers	3
MATS1300	College Algebra	4
<b>Total Credits</b>		<b>18</b>

### Spring Semester – First Year

Course#	Course Title	Credits
NANO1200	Fundamentals of Nanoscience II	3
NANO1210	Computer Simulation	1
CHEM1500	Introduction to Chemistry	4
MATS1251	Statistics	4
PHYS1200	College Physics II	4
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>19</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
NANO2101	Nanoelectronics	3
NANO2111	Nanobiotechnology/Agriculture	3
NANO2121	Nanomaterials	3
NANO2131	Manufacturing Quality Assurance	2
NANO2140	Interdisciplinary Lab	3
NANO2151	Career Planning and Industry Tours	1
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>18</b>

### Spring Semester – Second Year

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

### 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.*

# WELDING TECHNOLOGY

Location: Rosemount Campus

Start: Fall Semester, Full-Time

## 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
- Aluminum Welder
- Electric Spot Welder
- Heliarc Welder
- Oxyacetylene Welder
- Welding Specialist

## Salary Data

- Average Wage: \$20.06/hour
- Top Earners: \$25.56/hour

## WELDING TECHNOLOGY – DIPLOMA

### Fall Semester – First Year

Course#	Course Title	Credits
WELD1100	Welding Safety and Theory	2
WELD1102	Shielded Metal Arc Welding I	4
WELD1104	Semi-Automatic Arc Welding I	3
WELD1106	Gas Tungsten Arc Welding I	3
WELD1108	Blueprint Reading	3
<b>Total Credits</b>		<b>15</b>

### Spring Semester – First Year

Course#	Course Title	Credits
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
<b>Total Credits</b>		<b>17</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>32</b>
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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.*

*\*\* General Education – Select from SPEE1020, COML1400 or ENGL1100.*



# TRANSPORTATION

## PROGRAMS OF STUDY

<b>Auto Body Collision Technology</b>	<b>101</b>
<b>Automotive Technician</b>	<b>104</b>
<b>GM Automotive Service Program</b>	<b>107</b>
<b>Heavy Construction Equipment Technology</b>	<b>108</b>
<b>Heavy Duty Truck Technology</b>	<b>110</b>
<b>Railroad Conductor Technology</b>	<b>112</b>

## 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



Daytime Programs



Evening Programs



Online Programs

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

## FACULTY

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### Mark Brantner

#### Automotive Technician

*Diploma, Chippewa Valley Technical College*

651-423-8296 | mark.brantner@dctc.edu

### Jeffrey Copeland

#### Automotive Technician

*A.A.S., Des Moines Area Community College*

651-423-8296 | jeffrey.copeland@dctc.edu

### Robert Engberg

#### Automotive Technician

*B.A., University of Minnesota, Morris*

651-423-8322 | robert.engberg@dctc.edu

### Roger Gartner

#### Heavy Construction Equipment Technology

*Diploma, Alexandria Technical College*

651-423-8337 | roger.gartner@dctc.edu

### Mark Hickman

#### GM Automotive Service Educational Program

*B.S., University of Minnesota*

*M.S., Metropolitan State University*

651-423-8363 | mark.hickman@dctc.edu

### Kenneth Klassen

#### Heavy Duty Truck Technology

*Diploma, North Dakota State College of Science*

651-423-8402 | kenneth.klassen@dctc.edu

### Scott Logan

#### Auto Body Collision Technology

*Diploma, Dakota County Technical College*

651-423-8359 | scott.logan@dctc.edu

### Timothy McCluskey

#### GM Automotive Service Educational Program

*Diploma, St. Paul Technical College*

651-423-8387 | timothy.mccluskey@dctc.edu

### Roger Olson

#### Automotive Technician

*Diploma, Dunwoody Institute*

651-423-8455 | roger.olson@dctc.edu

### Richard Otteson

#### Heavy Duty Truck Technology

*B.E.S., St. Cloud State University*

651-423-8327 | richard.otteson@dctc.edu

### Gerard Rainford

#### Auto Body Collision Technology

*A.A.S. Degree, Dakota County Technical College*

651-423-8324 | gerry.rainford@dctc.edu

### Daniel Ruzicka

#### Heavy Construction Equipment Technology

*Diploma, Dakota County Technical College*

651-423-8481 | daniel.ruzicka@dctc.edu

### Donald Spano

#### Railroad Conductor Technology

*B.A., University of St. Thomas*

651-423-8352 | don.spano@dctc.edu

## ADVISOR

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### Jennifer Robinson-West

*B.A., Hunter College of the City of New York*

651-423-8217 | jennifer.west@dctc.edu

## DEAN

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### Mike Opp

*B.S.E., Dakota State University*

*M.S., Northern State University*

*E.d.S., University of South Dakota*

*E.d.D., University of South Dakota*

651-423-8232 | mike.opp@dctc.edu

*“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

Location: Rosemount Campus  
Start: Fall Semester, Full-Time

## 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: \$24.11/hour
- Top Earners: \$35.52/hour



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

### Fall Semester – First Year

Course#	Course Title	Credits
ABCT1111	Collision Repair Welding I	2
ABCT1120	Sheet Metal Repair	5
ABCT1130	Refinishing Preparation I	2
ABCT1142	Glass, Trim and Hardware	4
ABCT1150	Reconditioning and Detailing	2
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>18</b>

### Spring Semester – First Year

Course#	Course Title	Credits
ABCT1212	Collision Repair Welding II	2
ABCT1214	Refinishing Preparation II	3
ABCT1216	Refinishing Application	5
ABCT1230	Auto Body Plastic Repair	2
SPEE1020	Interpersonal Communication	3
	General Education Elective (MnTC Goal 3 or 4)**	3
<b>Total Credits</b>		<b>18</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
ABCT2100	Body Electrical	2
ABCT2102	Shop Management and Estimating	2
ABCT2106	Collision Damage Repair/Replacement	6
ABCT2108	Unibody/Frame/Wheel Alignment I	4
ENGL1100	Writing and Research Skills	3
ENGL1102	Technical Written Communications	3
<b>Total Credits</b>		<b>20</b>

### Spring Semester – Second Year

Course#	Course Title	Credits
ABCT2212	Unibody/Frame/Wheel Alignment II	6
ABCT2230	Body Mechanical and Air Conditioning	3
ABCT2970	Autobody Internship	2
	General Education Electives**	5
<b>Total Credits</b>		<b>16</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>72</b>
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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 116-118 for MnTC goal areas.*

**AUTO BODY COLLISION TECHNOLOGY – DIPLOMA****Fall Semester – First Year**

Course#	Course Title	Credits
ABCT1111	Collision Repair Welding I	2
ABCT1120	Sheet Metal Repair	5
ABCT1130	Refinishing Preparation I	2
ABCT1142	Glass, Trim and Hardware	4
ABCT1150	Reconditioning and Detailing	2
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>18</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
ABCT1212	Collision Repair Welding II	2
ABCT1214	Refinishing Preparation II	3
ABCT1216	Refinishing Application	5
ABCT1230	Auto Body Plastic Repair	2
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>15</b>

**Fall Semester – Second Year**

Course#	Course Title	Credits
ABCT2100	Body Electrical	2
ABCT2102	Shop Management and Estimating	2
ABCT2106	Collision Damage Repair/Replacement	6
ABCT2108	Unibody/Frame/Wheel Alignment I	4
ENGL1102	Technical Written Communications	3
<b>Total Credits</b>		<b>17</b>

**Spring Semester – Second Year**

Course#	Course Title	Credits
ABCT2212	Unibody/Frame/Wheel Alignment II	6
ABCT2230	Body Mechanical and Air Conditioning	3
ABCT2970	Autobody Internship	5
<b>Total Credits</b>		<b>14</b>

**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 116-118 for MnTC goal areas.*

**BODY TECHNICIAN – CERTIFICATE****Fall Semester – First Year**

Course#	Course Title	Credits
ABCT1111	Collision Repair Welding I	2
ABCT1120	Sheet Metal Repair	5
ABCT1142	Glass, Trim and Hardware	4
ABCT1212	Collision Repair Welding II	2
<b>Total Credits</b>		<b>13</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
ABCT2100	Body Electrical	2
ABCT2106	Collision Damage Repair/Replacement	6
ABCT2108	Unibody/Frame/Wheel Alignment I	4
ABCT2230	Body Mechanical and Air Conditioning	3
<b>Total Credits</b>		<b>15</b>

**TOTAL PROGRAM REQUIREMENTS 28**

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

**PAINT PREPARATION – CERTIFICATE****Fall Semester – First Year**

Course#	Course Title	Credits
ABCT1130	Refinishing Preparation I	2
ABCT1142	Glass, Trim and Hardware	4
ABCT1150	Reconditioning and Detailing	2
ABCT1214	Refinishing Preparation II	3
ABCT1216	Refinishing Application	5
ABCT1230	Auto Body Plastic Repair	2
	General Education**	3
<b>Total Credits</b>		<b>21</b>

**TOTAL PROGRAM REQUIREMENTS 21**

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

*\*\* General Education – Select from SPEE1020, COML1400 or ENGL1100.*

**ESTIMATOR – CERTIFICATE****Fall Semester – First Year**

Course#	Course Title	Credits
ABCT1120	Sheet Metal Repair	5
ABCT2102	Shop Management and Estimating	2
ABCT2108	Unibody/Frame/Wheel Alignment I	4
	General Education**	3
<b>Total Credits</b>		<b>14</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>14</b>
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*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 ENGL1100.*

# AUTOMOTIVE TECHNICIAN

Location: Rosemount Campus

Start: Fall or Spring Semester, Full-Time

## 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: \$19.95/hour
- Top Earners: \$29.49/hour



## AUTOMOTIVE TECHNICIAN – A.A.S. DEGREE

### Fall Semester – First Year

Course#	Course Title	Credits
AUTM2000	Basic Automotive Electrical/Battery	3
AUTM2010	Suspension, Steering, & Alignment Systems	3
AUTM2020	Brakes	4
AUTM2031	Differential and Four-Wheel Drive	3
COML1400	Introduction to Computers	3
	General Education Elective**	3
<b>Total Credits</b>		<b>19</b>

### Spring Semester – First Year

Course#	Course Title	Credits
AUTM2300	Driveability and Emissions	4
AUTM2310	Body and Engine Electrical Systems	4
AUTM2320	Automotive Computers and Fuel Injection	5
SPEE1020	Interpersonal Communication	3
	General Education Elective**	3
<b>Total Credits</b>		<b>19</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
AUTM2120	Engine Overhaul, Theory, Diagnosis, & Repair	7
AUTM2136	Heating, Ventilation, and Air Conditioning	3
AUTM2140	General Automotive	3
	General Education Elective (MnTC Goal 3 or 4)**	4
<b>Total Credits</b>		<b>17</b>

### Spring Semester – Second Year

Course#	Course Title	Credits
AUTM2200	Manual Transmissions, Transaxle & Clutches	4
AUTM2210	Basic Automatic Transmission/Transaxle	4
AUTM2220	Advanced Automatic Transmission/Transaxle	5
	General Education Elective**	4
<b>Total Credits</b>		<b>17</b>

### 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 116-118 for MnTC goal areas.*

**AUTOMOTIVE TECHNICIAN – DIPLOMA****Fall Semester – First Year**

Course#	Course Title	Credits
AUTM2000	Basic Automotive Electrical/Battery	3
AUTM2010	Suspension, Steering, & Alignment Systems	4
AUTM2020	Brakes	4
AUTM2031	Differential and Four-Wheel Drive	3
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>17</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
AUTM2300	Driveability and Emissions	5
AUTM2310	Body and Engine Electrical Systems	4
AUTM2320	Automotive Computers and Fuel Injection	5
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>17</b>

**Fall Semester – Second Year**

Course#	Course Title	Credits
AUTM2120	Engine Overhaul, Theory, Diagnosis, & Repair	8
AUTM2136	Heating, Ventilation, and Air Conditioning	3
AUTM2140	General Automotive	3
ENGL1100	Writing and Research Skills (or ENGL1102)	3
<b>Total Credits</b>		<b>17</b>

**Spring Semester – Second Year**

Course#	Course Title	Credits
AUTM2200	Manual Transmissions, Transaxle & Clutches	4
AUTM2210	Basic Automatic Transmission/Transaxle	5
AUTM2220	Advanced Automatic Transmission/Transaxle	5
<b>Total Credits</b>		<b>14</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>65</b>
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*This is a sample course sequence resulting in a diploma.  
Please consult your program advisor regarding your academic plans.*

**DRIVEABILITY – CERTIFICATE****Fall Semester – First Year**

Course#	Course Title	Credits
AUTM2000	Basic Automotive Electrical/Battery	3
AUTM2300	Driveability and Emissions	5
AUTM2310	Body and Engine Electrical Systems	4
AUTM2320	Automotive Computers and Fuel Injection	5
	General Education**	3
<b>Total Credits</b>		<b>20</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>20</b>
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*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 ENGL1100.**

**DRIVETRAIN/TRANSMISSION – CERTIFICATE****Fall Semester – First Year**

Course#	Course Title	Credits
AUTM2000	Basic Automotive Electrical/Battery	3
AUTM2200	Manual Transmissions, Transaxle & Clutches	4
AUTM2210	Basic Automatic Transmission/Transaxle	5
AUTM2220	Advanced Automatic Transmission/Transaxle	5
	General Education**	3
<b>Total Credits</b>		<b>20</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>20</b>
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*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 ENGL1100.**

**ENGINES/GENERAL AUTOMOTIVE – CERTIFICATE****Fall Semester – First Year**

Course#	Course Title	Credits
AUTM2000	Basic Automotive Electrical/Battery	3
AUTM2120	Engine Overhaul, Theory, Diagnosis, & Repair	8
AUTM2136	Heating, Ventilation, and Air Conditioning	3
AUTM2140	General Automotive	3
	General Education**	3
<b>Total Credits</b>		<b>20</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>20</b>
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*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 ENGL1100.*

**BRAKES, SUSPENSION AND ELECTRICAL – CERTIFICATE****Fall Semester – First Year**

Course#	Course Title	Credits
AUTM2000	Basic Automotive Electrical/Battery	3
AUTM2010	Suspension, Steering, & Alignment Systems	4
AUTM2020	Brakes	4
AUTM2031	Differential and Four-Wheel Drive	3
	General Education**	3
<b>Total Credits</b>		<b>17</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>17</b>
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*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 ENGL1100.*

# GM AUTOMOTIVE SERVICE EDUCATIONAL PROGRAM (ASEP)

Location: Rosemount Campus  
Start: Fall Semester, Full-Time

## Major Description

Through DCTC's unique cooperation with General Motors and ACDelco, ASEP produces 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, HUMMER, Pontiac, Saab and Saturn, or an ACDelco TSS Service Center.

## Potential Job Titles

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

## Salary Data

- Average Wage: \$19.95/hour
- Top Earners: \$29.49/hour



## AUTOMOTIVE SERVICE – A.A.S. DEGREE

### Fall Semester – First Year

Course#	Course Title	Credits
ASEP1101	Automotive Fundamentals	3
ASEP1102	Electrical and Fuel Systems	3
ASEP1201	Dealer Work Experience I	8
INTS1000	College Success Strategies	2
BIOL1110	Environmental Science	3
<b>Total Credits</b>		<b>19</b>

### Spring Semester – First Year

Course#	Course Title	Credits
ASEP1103	Driveability	3
ASEP1105	Heating and Air Conditioning	3
ASEP1202	Dealer Work Experience II	8
COML1400	Introduction to Computers	3
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>20</b>

### Summer Session – First Year

Course#	Course Title	Credits
ASEP1104	Body Electronics	3
ASEP2110	Automatic Transmissions	3
ASEP2303	Dealer Work Experience III	5
ENGL1100	Writing and Research Skills	3
<b>Total Credits</b>		<b>14</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
ASEP2111	Engines	3
ASEP2209	Driveline and Four-Wheel Drive	3
ASEP1204	Dealer Work Experience IV	8
PHIL1200	Critical Thinking	3
<b>Total Credits</b>		<b>17</b>

### Spring Semester – Second Year

Course#	Course Title	Credits
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
<b>Total Credits</b>		<b>17</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>87</b>
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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.*

# HEAVY CONSTRUCTION EQUIPMENT TECHNOLOGY

Location: Rosemount Campus

Start: Fall Semester, Full-Time

## 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: \$24.24/hour
- Top earners: \$31.83/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. Ziegler/Caterpillar of Minnesota/Iowa has formed a partnership with DCTC to offer this degree.

### Fall Semester – First Year

Course#	Course Title	Credits
HCEM1101	General Shop Mechanics - Introduction	2
HCEM1110	Welding and Flame Cutting	2
HCEM1132	Heavy Duty Electrical	3
HCEM1140	Diesel Engine Overhaul I	4
HCEM1160	Specialized Lab I	3
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>17</b>

### Spring Semester – First Year

Course#	Course Title	Credits
HCEM1234	Heavy Duty Electronics	3
HCEM1246	Diesel Engine Overhaul II	3
HCEM1250	Brakes	2
HCEM1256	Diesel Engine Tune-up	3
HCEM1261	Specialized Lab II-A.A.S.	2
SPEE1020	Interpersonal Communication	3
	General Education Elective**	3
<b>Total Credits</b>		<b>19</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
HCEM2115	Transmissions	4
HCEM2135	Hydraulics I	3
HCEM2145	Hydrostatic Systems	3
HCEM2176	Specialized Lab III-A.A.S.	2
	General Education Electives**	7
<b>Total Credits</b>		<b>19</b>

### Spring Semester – Second Year

Course#	Course Title	Credits
HCEM2225	Track Drive Systems	3
HCEM2238	Hydraulics II	3
HCEM2255	Steering Systems	3
HCEM2265	Differentials	2
HCEM2280	Climate Control	2
	General Education Elective (MnTC Goal 3 or 4)**	4
<b>Total Credits</b>		<b>17</b>

### 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 116-118 for MnTC goal areas.*

## HEAVY CONSTRUCTION EQUIPMENT TECHNOLOGY – DIPLOMA

### Fall Semester – First Year

Course#	Course Title	Credits
HCEM1101	General Shop Mechanics - Introduction	2
HCEM1110	Welding and Flame Cutting	2
HCEM1132	Heavy Duty Electrical	3
HCEM1140	Diesel Engine Overhaul I	4
HCEM1160	Specialized Lab I	3
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>17</b>

### Spring Semester – First Year

Course#	Course Title	Credits
HCEM1234	Heavy Duty Electronics	3
HCEM1246	Diesel Engine Overhaul II	3
HCEM1250	Brakes	2
HCEM1256	Diesel Engine Tune-up	3
HCEM1261	Specialized Lab II-A.A.S.	2
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>16</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
HCEM2115	Transmissions	4
HCEM2135	Hydraulics I	3
HCEM2145	Hydrostatic Systems	3
HCEM2176	Specialized Lab III-A.A.S.	2
ENGL1100	Writing and Research Skills (or ENGL1102)	3
<b>Total Credits</b>		<b>15</b>

### Spring Semester – Second Year

Course#	Course Title	Credits
HCEM2225	Track Drive Systems	3
HCEM2238	Hydraulics II	3
HCEM2255	Steering Systems	3
HCEM2265	Differentials	2
HCEM2280	Climate Control	2
	Technical Elective*	3
<b>Total Credits</b>		<b>16</b>

**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 – Student must choose between HCEM2279  
Specialized Lab IV 1–3 credits and/or HCEM2280 Climate Control 2 credits.

## HEAVY CONSTRUCTION EQUIPMENT MAINTENANCE – CERTIFICATE

### Fall Semester – First Year

Course#	Course Title	Credits
HCEM1101	General Shop Mechanics - Introduction	2
HCEM1110	Welding and Flame Cutting	2
HCEM1132	Heavy Duty Electrical	3
HCEM1140	Diesel Engine Overhaul I	4
HCEM1160	Specialized Lab I	3
<b>Total Credits</b>		<b>14</b>

### Spring Semester – First Year

Course#	Course Title	Credits
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
<b>Total Credits</b>		<b>14</b>

**TOTAL PROGRAM REQUIREMENTS 28**

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

# HEAVY DUTY TRUCK TECHNOLOGY

Location: Rosemount Campus

Start: Fall Semester, Full-Time

## 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 systems, steering and alignment, and air and foundation brakes. 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.

## 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: \$21.76/hour
- Top earners: \$28.90/hour



## HEAVY DUTY TRUCK TECHNOLOGY – A.A.S. DEGREE

### Fall Semester – First Year

Course#	Course Title	Credits
HDTT1100	Truck Technology Fundamentals	4
HDTT1103	Air Brake Systems	6
HDTT1106	Welding Procedures	2
HDTT1109	Fluid Power Systems	2
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>17</b>

### Spring Semester – First Year

Course#	Course Title	Credits
HDTT1212	Preventive Maintenance	4
HDTT1215	Suspensions and Steering Systems	4
HDTT1218	Electrical Systems	4
HDTT1222	Truck A/C	2
SPEE1020	Interpersonal Communication	3
	General Education Elective**	3
<b>Total Credits</b>		<b>20</b>

### Fall Semester – Second Year

Course#	Course Title	Credits
HDTT2101	Drive Train I	6
HDTT2104	Drive Train II	4
HDTT2107	Diesel Fundamentals	3
HDTT2110	Diesel Fuel Systems	1
	General Education Elective (MnTC Goal 3 or 4)**	4
<b>Total Credits</b>		<b>18</b>

### Spring Semester – Second Year

Course#	Course Title	Credits
HDTT2213	Diesel Engine Fundamentals	4
HDTT2216	Diesel Electronics	3
HDTT2970	Internship or HDTT2222 Diesel Engine Lab	3
	General Education Electives**	7
<b>Total Credits</b>		<b>17</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>72</b>
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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 116-118 for MnTC goal areas.*

**HEAVY DUTY TRUCK TECHNOLOGY – DIPLOMA****Fall Semester – First Year**

Course#	Course Title	Credits
HDTT1100	Truck Technology Fundamentals	4
HDTT1103	Air Brake Systems	6
HDTT1106	Welding Procedures	2
HDTT1109	Fluid Power Systems	2
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>17</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
HDTT1212	Preventive Maintenance	4
HDTT1215	Suspensions and Steering Systems	4
HDTT1218	Electrical Systems	4
HDTT1222	Truck A/C	2
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>17</b>

**Fall Semester – Second Year**

Course#	Course Title	Credits
HDTT2101	Drive Train I	6
HDTT2104	Drive Train II	4
HDTT2107	Diesel Fundamentals	3
HDTT2110	Diesel Fuel Systems	1
ENGL1100	Writing and Research Skills (or ENGL1102)	3
<b>Total Credits</b>		<b>17</b>

**Spring Semester – Second Year**

Course#	Course Title	Credits
HDTT2213	Diesel Engine Fundamentals	4
HDTT2216	Diesel Electronics	3
HDTT2970	Internship or HDTT2222 Diesel Engine Lab	6
<b>Total Credits</b>		<b>13</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>64</b>
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*This is a sample course sequence resulting in a diploma.  
Please consult your program advisor regarding your academic plans.*

**TRUCK FLEET MAINTENANCE – CERTIFICATE****Fall Semester – First Year**

Course#	Course Title	Credits
HDTT1100	Truck Technology Fundamentals	4
HDTT1103	Air Brake Systems	6
HDTT1106	Welding Procedures	2
HDTT1109	Fluid Power Systems	2
COML1400	Introduction to Computers	3
<b>Total Credits</b>		<b>17</b>

**Spring Semester – First Year**

Course#	Course Title	Credits
HDTT1212	Preventive Maintenance	4
HDTT1215	Suspensions and Steering Systems	4
HDTT1218	Electrical Systems	4
HDTT1222	Truck A/C	2
<b>Total Credits</b>		<b>14</b>

<b>TOTAL PROGRAM REQUIREMENTS</b>	<b>31</b>
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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.*

# RAILROAD CONDUCTOR TECHNOLOGY

Location: Rosemount Campus

Start: August, October, January, March (15 weeks in length), Full-Time

## Major Description

This program prepares students to serve as railroad conductors in the railway industry, which is critical to our nation's livelihood. Retirement rates of current conductors promise excellent job opportunities. DCTC formed partnerships with Canadian Pacific Railway, Union Pacific Railroad and many other regional and short lines to develop a curriculum that puts graduates on the fast track to employment in the industry.

## Work Environment

Railroad conductors oversee train routes, movements and car switching through a range of duties, including the relay of signals in emergency situations. Conductors work irregular hours, including holidays, weekends, days and nights for shifts up to 12 hours. Constantly alert to changing conditions, they are trained to act safely and responsibly.

## Potential Job Titles

- Train Conductor
- Car Distributor
- Freight Conductor
- Trainmaster

## Salary Data

- Average Wage: \$29.26/hour
- Top Earners: \$46.78/hour

## RAILROAD CONDUCTOR TECHNOLOGY – CERTIFICATE

### 15 Week Term

Course#	Course Title	Credits
RRCC1110	Orientation	1
RRCC1120	Introduction to Conductor Service	4
RRCC1130	General Code of Operating Rules	4
RRCC1140	Mechanical Operations	2
RRCC1150	Conductor Duties	2
RRCC1160	Utilization of RR Equip. & Safety Standards	2
RRCC2970	Railroad Conductor Internship	1
<b>Total Credits</b>		<b>16</b>

### TOTAL PROGRAM REQUIREMENTS

16

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



# 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>.**

## FACULTY

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### Joe Campbell

#### English

*B.A., University of Minnesota*

*M.A., California State University, Los Angeles*

*M.F.A., Colorado State University*

651-423-8452 | [joe.campbell@dctc.edu](mailto:joe.campbell@dctc.edu)

### Joe Eells

#### Psychology

*B.S., University of Wisconsin, Stout*

*M.S., University of Wisconsin, Stout*

651-423-8475 | [joe.eells@dctc.edu](mailto:joe.eells@dctc.edu)

### Mark Grant

#### Speech Communication

*B.S., Mankato State University*

*M.A., Mankato State University*

651-423-8566 | [mark.grant@dctc.edu](mailto:mark.grant@dctc.edu)

### Gayle Larson

#### English, Computer Literacy

*B.A., Metro State University*

*M.A., Saint Mary's University*

651-423-8395 | [gayle.larson@dctc.edu](mailto:gayle.larson@dctc.edu)

### Margaret Milne

#### English

*B.S., University of New York*

*M.F.A., Minnesota State University, Mankato*

*M.A.E., University of South Dakota*

651-423-8427 | [margaret.milne@dctc.edu](mailto:margaret.milne@dctc.edu)

### Cassandra Moe

#### Biology

*B.S., University of Minnesota*

*Ph.D., University of Maryland*

651-423-8336 | [cassandra.moe@dctc.edu](mailto:cassandra.moe@dctc.edu)

### Kathy Niebur

#### Flextime Lab

*B.S., San Diego State University*

651-423-8251 | [kathy.niebur@dctc.edu](mailto:kathy.niebur@dctc.edu)

### Claudia Rose

#### ESOL, Developmental English

*B.S., University of North Dakota*

651-423-8522 | [claudia.rose@dctc.edu](mailto:claudia.rose@dctc.edu)

### Larry Stone

#### Mathematics

*B.S., University of Lowell*

*M.S., University of Minnesota*

651-423-8424 | [laurence.stone@dctc.edu](mailto:laurence.stone@dctc.edu)

### Denise Strenger

#### Sociology

*B.A., University of St. Thomas*

*M.S., California State University, Los Angeles*

651-423-8488 | [denise.strenger@dctc.edu](mailto:denise.strenger@dctc.edu)

### Anna Verhoye

#### Speech Communication

*B.A., San Diego State University*

*M.A., San Diego State University*

651-423-8419 | [anna.verhoye@dctc.edu](mailto:anna.verhoye@dctc.edu)

## ADVISOR

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### Brian Espy

*B.A., College of St. Benedict*

651-423-8537 | [brian.espy@dctc.edu](mailto:brian.espy@dctc.edu)

## DEAN

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### Kelly Murtaugh

*B.A., University of Minnesota, Morris*

*M.A., Bowling Green State University*

651-423-8231 | [kelly.murtaugh@dctc.edu](mailto:kelly.murtaugh@dctc.edu)

*"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

Course#	Course Title	Credits
<b>Computer Literacy</b>		
COML1400	Introduction to Computers	3
<b>Communication</b>		
ENGL1100	Writing and Research Skills	3
<b>Human Diversity</b>		
SPEE1020	Interpersonal Communication	3
<b>Mathematics (choose one course numbered over 1000):</b>		
MATS	any Math course (except 1205)	3-4
<b>Science</b>		
BIOL	any Biology course	3-4
CHEM	any Chemistry course	4
PHYS	any Physics course	4
<b>Total Credits</b>		<b>15-17</b>

### ELECTIVE COURSES

Students must complete a minimum of 13-15 elective credits from at least two of the following Goal Areas listed on the following Minnesota Transfer Curriculum pages:

Goal 2	Critical Thinking	
Goal 5	History and the Social and Behavioral Sciences	
Goal 6	Humanities and Fine Arts	
Goal 8	Global Perspective	
Goal 9	Ethical and Civic Responsibility	
Goal 10	People and the Environment	
<b>Total Credits</b>		<b>13-15</b>
<b>TOTAL REQUIREMENTS</b>		<b>30</b>

## 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

Course#	Course Title	Credits
<b>Computer Literacy</b>		
COML1400	Introduction to Computers	3
<b>Communication</b>		
ENGL1100	Writing and Research Skills	3
<b>Human Diversity</b>		
SPEE1020	Interpersonal Communication	3
<b>Mathematics (choose one course numbered over 1000):</b>		
BIOL	any Biology course	3-4
CHEM	any Chemistry course	4
PHYS	any Physics course	4
MATS	any Math course (except 1205)	3-4
<b>Total Credits</b>		<b>12-13</b>

### ELECTIVE COURSES

Students may be required to complete additional credits beyond what is listed above. Choose from the courses listed on the following Minnesota Transfer Curriculum pages:

ARTS	any Arts course	
BIOL	any Biology course	
COMM	any Communications course	
ECON	any Economics course	
ENGL	any English course 1200 and above	
HIST	any History course	
HUMA	any Humanities course	
INTS*	1000, 1010, or 1040	
PHED*	any PHED course	
PHIL	any Philosophy course	
POLS	any Political Science course	
PSYC	any Psychology course	
SOCY	any Sociology course	
SPEE	any Speech course	
<b>Total Credits</b>		<b>7-8</b>
<b>TOTAL REQUIREMENTS</b>		<b>20</b>

\* A maximum of 2 credits from these courses combined in any manner may count toward A.A.S. degrees requiring 20 or more general education credits.

## DIPLOMA REQUIREMENTS

For students enrolled in diploma programs over 45 credits in length, there are typically nine credits of required general education courses to complete as outlined below. **See your advisor or program page in this catalog for program specific requirements.**

### REQUIRED COURSES

Course#	Course Title	Credits
<b>Computer Literacy</b>		
COML1400	Introduction to Computers	3
<b>Communication</b>		
ENGL1100	Writing and Research Skills*	3
<b>Human Diversity</b>		
SPEE1020	Interpersonal Communication	3
<b>Total Credits</b>		<b>9</b>
<b>TOTAL REQUIREMENTS</b>		<b>9</b>

#### Please note:

Practical Nursing program requires 20 semester credits of general education courses. See page 83 for details.

- \* The following diploma programs may substitute ENGL1102 for ENGL1100 (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.

Dakota County Technical College 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 Dakota County Technical College. The goal area completion requirement is listed in italic text after the goal area descriptive paragraph.

### Communication (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.*

ENGL1100	Writing and Research Skills	3 cr
ENGL1200	Technical Writing	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
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**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:**

BIOL1300	Intro to Physiological Anatomy	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
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
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
HUMA1100	Introduction to the Humanities	4 cr
PHIL1350	Medical Ethics	3 cr
PHIL1400	World Religions	3 cr

**Human Diversity (Goal 7)**

To increase students' understanding of individual and group differences (e.g., race, gender, class) and their knowledge of the traditions and values of various groups in the United States. Students should be able to evaluate the United States' historical and contemporary responses to group differences. *MnTC completion requires one course.*

SOCY1150	Race and Gender	2 cr
SPEE1020	Interpersonal Communication	3 cr
SPEE1030	Intercultural Communication	3 cr

**Global Perspective (Goal 8)**

To increase students' understanding of the growing interdependence of nations and peoples and develop their ability to apply a comparative perspective to cross-cultural social, economic and political experiences. *MnTC completion requires one course.*

COMM1221	American Sign Language-Level I	3 cr
HIST1300	World History	4 cr
PHIL1400	World Religions	3 cr
SOCY1210	Social Issues in a Changing World	3 cr
SPAN1100	Beginning Spanish I	4 cr
SPAN1200	Beginning Spanish II	4 cr
SPEE1030	Intercultural Communication	3 cr

**Ethical and Civic Responsibility (Goal 9)**

To develop students' capacity to identify, discuss, and reflect upon the ethical dimensions of political, social, and personal life and to understand the ways in which they can exercise responsible and productive citizenship. *MnTC completion requires one course.*

PHIL1100	Ethics	3 cr
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**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

**DCTC DEFINED REQUIREMENT****Computer Literacy**

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	Introduction to Computers	3 cr
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**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
ESOL0045	ESOL Writing and Grammar II	4 cr

**Mathematical/Logic Reasoning**

MATS0200	Basic Mathematics	3 cr
MATS0305	Introduction to Algebra	4 cr
MATS0400	Introduction to Geometry	1 cr
MATS0500	Introduction to Trigonometry	1 cr
MATS0600	Intermediate Algebra	4 cr

## ACCOUNTING

### ACCT1000 Principles of Accounting I 4 cr

This course covers the fundamental accounting concepts and principles that are used in a business environment. It serves as the introductory course to financial accounting as it relates to accrual accounting. Prerequisites: None. \*\*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. Prerequisites: None.

### 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. Prerequisites: None. \*\*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. Prerequisites: None.

### 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: ACCT1810.

### 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: ACCT1810.

### 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. Prerequisites: None.

### 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.

### ACCT2206 Fund/Nonprofit Accounting 3 cr

This course covers the application of generally accepted accounting principles for state and local governmental units. Topics include accounting for states, municipalities and not-for-profit organizations with some federal government accounting. Prerequisites: ACCT1003.

### ACCT2306 Auditing 3 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. Prerequisites: None.

## ARCHITECTURAL TECHNOLOGY

### ARCT1101 Architectural Studio 1A 4 cr

Students will study the fundamentals of residential design and construction. Learning will occur in the context of preparing two residential projects. The projects will focus on manual architectural drafting standards and typical residential building technology. The second project will integrate residential design elements and building code requirements. Prerequisites: None.

### ARCT1102 Architectural Studio 1B 4 cr

Students will study multi-family light commercial design and building technology. Learning will occur in the context of preparing a CAD drafted set of commercial construction documents. The project focus will be to integrate exterior design development, unit plan development and site plan development. Prerequisites: None.

### ARCT1103 Building Technology I 3 cr

This course will introduce the beginning architectural technology student to the characteristics and properties of common building materials: wood, masonry, concrete and metals. Fundamentals of current building technology principles will be learned in association with studio projects. Students will research building technology principles from library resources, manufacturer's catalogs and professionally prepared construction documents. Prerequisites: Concurrent enrollment in ARCT1100.

### ARCT1107 CAD I 3 cr

This course will introduce the beginning architectural technology student to computer-aided design programs currently being used in professional design offices. Fundamental concepts, commands, and tools of a CAD environment will be taught with a hands-on approach to learning. Students will complete self-paced drafting exercises. Prerequisites: A working knowledge of Windows Operating System or instructor approval. \*\*Articulated\*\*

### ARCT1200 Architectural Studio II 8 cr

Students prepare design construction documents for a small-scale commercial building in a simulated professional design office. Students learn to integrate building codes, ADA, and structural systems into their designs. Prerequisites: ARCT1100, and concurrent enrollment in ARCT1203.

**ARCT1203 Building Technology II** 3 cr  
Various commercial building codes will be presented and analyzed. The student will do a building codes research project. The completed research will be documented and integrated into design projects. Prerequisites: ARCT1100 and ARCT1103, and concurrent enrollment in ARCT1200.

**ARCT1207 CAD II** 3 cr  
This course builds on the student's knowledge of AutoCAD. The student will use intermediate AutoCAD techniques to develop construction drawings to supplement the work in ARCT 1200. Prerequisites: ARCT1107.

**ARCT1300 Introduction to SketchUp Modeling Software** 3 cr  
This course will introduce the motivated student to 3 dimensional modeling software currently being used in professional design offices. Fundamental concepts, commands, and tools of the SketchUp will be taught in an enhanced on-line learning environment. There will be two on site formal lectures introducing basic concepts and ten on-line sessions. Students will submit required projects, questions and comments, to D2L server. Students will complete self-paced tutorials available at the following web address: <http://www.sketchup.com> Prerequisites: The student will have a working knowledge of Mac OS and/or Windows XP. It is recommended the student have a background in either drafting, art or computer graphics.

**ARCT1400 Residential Planning and Design** 4 cr  
This course will introduce the interested student to the fundamentals of residential design. The course curriculum is intended to guide the learner toward a basic understanding of Plot Plan layout, Floor Plan development and current Architectural styles. Prerequisites: None.

**ARCT1425 Architectural Drawings and Methods** 4 cr  
This course will introduce the interested student to the fundamentals of Architectural drawings. The course curriculum is intended to guide the learner toward a basic understanding of Sketching to Scale, Orthographic Images and required project Drawings for the purposes of design and construction.

**ARCT1450 Wood Frame Building Technologies** 4 cr  
This course will introduce the interested student to the fundamentals of Wood Frame construction. The course curriculum is intended to guide the learner toward a basic understanding of Foundation Construction, Wood Frame assemblies and conventional building systems.

**ARCT1475 Residential Construction and Costs** 4 cr  
This course will introduce the interested students to the construction process for residential structures. The course curriculum is intended to guide the learner toward a basic understanding of contracting, cost estimating and building official inspections.

**ARCT2100 Architectural Studio III** 8 cr  
Students prepare architectural drawings for a small-scale commercial building. This course builds on the students' architectural technology skills as they prepare projects for their portfolios. Prerequisites: ARCT1200, and concurrent enrollment in ARCT2103.

**ARCT2103 Building Technology III** 3 cr  
This course will introduce the student to acoustics, electrical/lighting, plumbing, HVAC, insulation and vapor barriers, and fire protection. The student will integrate research on various building systems into design projects. Prerequisites: ARCT1203, and concurrent enrollment in ARCT2100.

**ARCT2107 CAD III** 3 cr  
This course builds on the student's knowledge of AutoCAD. The student will use advanced AutoCAD techniques to develop construction drawings to supplement the work in ARCT 2100. Prerequisites: ARCT1207 or equivalent.

**ARCT2200 Architectural Studio IV** 5 cr  
This course provides an opportunity for the student to demonstrate previously learned architectural technology skills by independently preparing computer-aided design working drawings of a commercial project elevation detail sheet. Students will incorporate the completed drawings into their portfolios for internship interviews with future employers. Prerequisites: ARCT2100.

## 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. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**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 Prerequisites: None.

## AUTO BODY COLLISION TECHNOLOGY

**ABCT1111 Collision Repair Welding I** 2 cr  
This course covers welding safety, familiarization with oxyacetylene equipment and MIG welder operations. Prerequisites: None.

**ABCT1120 Sheet Metal Repair** 5 cr  
This course covers the tools and processes used for repairing minor damage on sheet metal panels. Safe and proper use of body fillers are included in this course. A 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. Prerequisites: None.

**ABCT1150 Reconditioning and Detailing** 2 cr  
This course covers various methods of vehicle cleanup and reconditioning. Prerequisites: None. \*\*Articulated\*\*

**ABCT1212 Collision Repair Welding II** 2 cr  
This course covers aluminum welding, resistance type spot welding, weld bonding and the I-CAR welding qualification test. Prerequisites: ABCT1111. \*\*Articulated\*\*

**ABCT1214 Refinishing Preparation II** 3 cr  
This course covers procedures for preparation and application of undercoat systems. Panel preparation techniques are also covered. Prerequisites: ABCT1120, ABCT1130, ABCT1142.

**ABCT1216 Refinishing Application** 5 cr  
This course covers the application of undercoats and topcoats in refinishing. Color theory, adjustment, and blending will be covered. Prerequisites: ABCT1142, ABCT1150, ABCT1130, ABCT1214

**ABCT1230 Auto Body Plastic Repair** 2 cr  
This course covers the different methods of repairing automotive plastics. Prerequisites: ABCT1130, ABCT1142, ABCT1214, ABCT1216.

**ABCT2100 Body Electrical** 2 cr  
This course will focus on electrical troubleshooting and repair problems and procedures relating to collision electrical damage problems. It covers operation, servicing of chassis wiring, instruments, and accessories. Prerequisites: None.

**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. Prerequisites: None.

**ABCT2106 Collision Damage Repair/Replacement** 6 cr  
This course will focus on sheet metal, unitized body and full frame sectioning and replacement of parts and components. Content will be based on proper methods that are approved and tested to meet O.E.M. and I-Car standards for proper structural integrity of the repair and the vehicle. Prerequisites: ABCT1111, ABCT1212, and ABCT1120.

**ABCT2108 Unibody/Frame/Wheel Alignment I** 4 cr  
This course will focus on unibody, full frame repair and alignment using various alignment, measuring and pulling equipment. This course will also contain wheel alignment procedures and terminology relating to collision damaged vehicles. Prerequisites: ABCT1111, ABCT1212, ABCT1120.

**ABCT2212 Unibody/Frame/Wheel Alignment II** 6 cr  
This course is a continuation of ABCT2108 with additional technical information and procedures. Students will be using frame repair equipment, various measuring equipment to include universal measuring, centerline gauges, and laser measuring and applying all previous training on damaged vehicle repairs. Prerequisites: ABCT1111, ABCT1212, ABCT1120, ABCT2108, ABCT2106.

**ABCT2230 Body Mechanical and Air Conditioning** 3 cr  
This course will focus on auto collision related minor mechanical failures. The course will also focus on typical air conditioning procedures related to auto collision such as reclaim, recharge and replace parts as result of a collision contains subject matter related to mechanical repairs as a result of a collision. Prerequisites: None.

## AUTOMOTIVE RESTORATION

**ARES1000 Intro to Auto Restoration Welding/Sheet Metal** 6 cr  
This course covers basic tools and techniques for the restoration of older vehicles. Topics will include: welding, rust repair, metal straightening, plastic filler application and corrosion protection. Prerequisites: None.

## AUTOMOTIVE TECHNICIAN

**AUTM2000 Basic Electrical and Battery** 3 cr  
This course teaches basic fundamentals of electricity and electronics, sources of electricity, circuits, magnetism, resistance, coils, capacitance, instruments, diode and solid-state devices. Topics are presented in a manner that relates the subject to the occupation. Prerequisites: None.

**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. Prerequisites: None.

**AUTM2020 Brakes** 4 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: None. \*\*Articulated\*\*

**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. Prerequisites: None.

**AUTM2136 Heating, Ventilation and Air Conditioning** 3 cr  
This course covers the principles of air conditioning and types, diagnosis, testing, and repair of air conditioning systems. The course includes practical work on air conditioning systems such as evacuating, replacement of components, charging, recycling and performance testing. Prerequisites: None.

**AUTM2140 General Automotive Service** 3 cr  
This course covers the correct procedures for servicing vehicles, shop safety, and use of service manuals and bulletins. Automotive tools, equipment, minor service, work habits and use of the library will be emphasized. Prerequisites: None. \*\*Articulated\*\*

**AUTM2200 Manual Transmission/Transaxle and Clutches** 4 cr  
This course teaches the operation and proper repair procedures of manual transmissions/transaxles and clutches used in today's vehicles. Prerequisites: None.

**AUTM2220 Advanced Automatic Transmission/Transaxle** 5 cr  
This course teaches automatic transmission and transaxle diagnosis and service. Emphasis is on troubleshooting and repair procedures. Prerequisites: AUTM2210.

**AUTM2310 Body and Engine Electrical Systems** 4 cr  
This course includes instruction in the operation and servicing techniques required to repair electrically operated equipment used on today's automobiles. Examples of areas to be covered will include, but not be limited to, power windows, power locks, air-bag systems and charging and starting systems. Prerequisites: None. \*\*Articulated\*\*

**AUTM2320 Automobile Computers and Fuel Injection** 5 cr  
This course will cover the theory and operating principles of automotive computers and throttle body and multi-port injection systems. Prerequisites: None. \*\*Articulated\*\*

## 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. Prerequisites: None.

**BIOL1120 Minnesota Nature Study** 3 cr  
This lab 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 stressed. Prerequisites: None.

**BIOL1200 Biology and Society** 3 cr  
This is an interdisciplinary course that explores the interaction between biology and related complex human issues. Along with gaining an 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, stem-cell propagation, cloning, and human genome project give rise to numerous ethical questions. The emergence of viral pathogens such as HIV and Ebola, the increasing prevalence of drug resistant bacteria, and the specter of anthrax and smallpox being utilized as agents of terrorism, raise daunting social and scientific questions. Addressing such issues requires both an understanding of biology and its context within our society. Prerequisites: None.

**BIOL1300 Introduction to Physiological Anatomy** 4 cr  
This lecture and laboratory based course is designed for introductory study of human anatomy and physiology. It emphasizes the structure and function of the systems of the body including the skeletal, muscular, cardiovascular, respiratory, nervous, endocrine, renal, digestive, urinary, and reproductive systems. Carefully check your program requirements for acceptability of this course. It does not replace the two course sequence of anatomy and physiology required for many advanced health programs. Prerequisites: Recommend college level reading and math placement on ACCUPLACER.

**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. Prerequisites: None.

**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 ACCUPLACER reading score of 78 or higher.

**BIOL1600 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: BIOL2000 and BIOL2010.

**BIOL2000 Anatomy & Physiology I** 4 cr  
This two-semester sequence provides the student with the basic knowledge in anatomy and physiology of the human body. The emphasis will be on the relationship between body structure and function. Each functional system is considered in terms of its cell, tissue and organ types. Fundamental information in the areas of chemistry and physics as related to the structure and function of the body is also included. Structural systems covered, including the integumentary 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.

**BIOL2010 Anatomy and Physiology II** 4 cr  
This two-semester sequence provides the student with the basic knowledge in anatomy and physiology of the human body. The emphasis will be on the relationship between body structure and function. Each functional system is considered in terms of its cell, tissue and organ types. Fundamental information in the areas of chemistry and physics as related to the structure and function of the body is also included. Systems covered include digestive, urinary, reproductive, lymphatic and cardiovascular. Dissection of a fetal pig is required. Prerequisites: BIOL2000 or equivalent.

## BIOMEDICAL EQUIPMENT TECHNOLOGY

**BMET1110 Introduction to Biomedical Technology** 3 cr  
This course provides students with an industry overview/perspective in the biomedical technology field. In this course students will learn the relationships between equipment and patient care. Prerequisites: None.

**BMET1112 DC Electricity** 3 cr  
This course is designed to investigate the direct current and voltage behavior of series and parallel circuits using Ohm's and Watt's laws. Natural and direct current electromagnetism will also be presented. Students will perform lab projects on all subject matter by use of an interactive lab network computer. Prerequisites: None.

**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. Prerequisites: None.

**BMET1121 Administrative Functions** 3 cr  
This course introduces students to the basic operation of hospitals; the requirements of regulatory agencies; biomedical department policies and procedures and the managing of information, work orders and vendors. Prerequisites: None.

**BMET1123 A. C. Electricity** 3 cr  
This course introduces the principles of alternating current. Circuits will consist of resistive, capacitive and inductive devices. Ohm's and Watt's laws, along with Norton's and Thevenin's theorems will be used to simplify complex combinations of RCL circuits. Test equipment introduced includes the VOM (volt-ohm-meter), DMM (digital-multimeter), signal generator and oscilloscope. The course concludes with resonating circuits. Prerequisites: BMET1112 or equivalent.

**BMET1136 Managing Customer Satisfaction in the Health Care Environment** 1 cr  
This course will consist of class lecture and practical exercises. The student will learn to differentiate between internal and external customers in the Health Care Environment. They will be able to identify good customer service when they see it. They will understand the three areas of focus for customer service improvement. Customer service issues specific to the Health Care field and technical service will be covered. Prerequisites: None.

**BMET1221 Biomedical Instrumentation I** 4 cr  
This course studies the various technologies used in the medical care field. Areas of study will cover the use of various test equipment, performing 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. Prerequisites: BMET1112, BMET1123, and BMET1110.

**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: BMET1220.

**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. Prerequisites: None.

**BMET1530 Digital and Micro Processor** 3 cr  
This course covers the basic and advanced digital logic used in integrated circuits and their application. Logic diagrams and analysis will be covered. Microprocessor control and feedback systems using sensor feedback will be studied. Training will be accomplished using the LabVolt system and handouts selected by the instructor. Prerequisites: BMET1112, BMET1123, BMET1116 or equivalent.

## BUSINESS ENTREPRENEUR

### ENTR1150 The Successful Entrepreneur 2 cr

Students taking this course will learn what it takes to own, operate, and manage 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 examine the various skills and habits necessary for making a business a success. Various case studies will be examined as to why some businesses fail while others succeed. The student will identify their individual strengths and weakness and will learn what area they need to work on to insure success in their small business venture. The student will be exposed to many types of small businesses and other types of entrepreneurial ventures, and will generate personal preferences for the type of small business they would like to own. Prerequisites: None.

### ENTR1400 Advertising Strategies 1 cr

Students will look at a variety of advertising media available for the small business and for the business with a small advertising budget. Students will begin to develop advertising materials that will be used in their business plan. Prerequisites: None.

### 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.

### ENTR1600 Professional Presentations 1 cr

Business owners need to present their ideas to someone else. This may be a Banker, Board of Directors, a Customer, a Prospective Customer/Client, potential employees or possible business partners and investors. In this course, students will learn to design a professional business presentation. Students will learn to use portfolios, presentation books, overhead transparencies, slides, and computer presentations. Prerequisites: None.

### 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. Prerequisites: None.

### ENTR1850 Strategic Planning 1 cr

Students will develop methods that will help them evaluate their business' current position, determine where they would like to be in the future and develop a plan that will help them obtain those future goals and objectives. Prerequisites: None.

### 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. Prerequisites: None.

### ENTR1900 Capitalizing a Small Business 2 cr

This course will provide the student with the information and tools necessary to fund a small business. The student will be exposed to various methods of raising both start-up and operating capital. These methods include bank loans, SBA loans, venture financing, and grant opportunities. The student will practice presenting his or her company in preparation for presenting to bankers and investors. Prerequisites: ENTR1860 or may take courses concurrently.

### ENTR1925 Innovative Problem Solving 1 cr

Students will develop methods and techniques that will enable them to effectively assess and work towards solutions to everyday challenges of owning and operating a business and being effective in their personal lives. Prerequisites: None.

### ENTR1945 Business Finance and Cash Flow Analysis 1 cr

In this course, students will learn the techniques and formulas that will enable a business owner to determine his/her company's profitability, and how to make projections of future profitability based upon its present financial conditions. Prerequisites: None.

### ENTR1965 Building a Successful Internet Business 1 cr

Students will focus on the types of businesses that can benefit from a presence on the Internet. They will develop strategies to maximize their company's effectiveness on the Internet. Prerequisites: None.

## 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. Prerequisites: None.

## 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. Prerequisites: None. \*\*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. Prerequisites: None.

### 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. Prerequisites: None. \*\*Articulated\*\*

### CDEV1220 Child Safety, Health, and Nutrition 4 cr

This course will guide the student in obtaining skills needed to establish and maintain a physically and psychologically safe and healthy learning environment for young children. Topics include preventing illness and accidents, handling emergencies, providing health, safety and nutrition educational experiences, meeting children's basic nutritional needs, drug/chemical abuse, child abuse and current health-related issues. (NOTE: This course does not include CPR or First Aid certification.) Prerequisites: None. \*\*Articulated\*\*

### CDEV1230 Guidance and the Early Childhood Environment 4 cr

This course provides an exploration of the physical and social environments that promote learning and development for young children. It includes an introduction to basic child guidance techniques for individual and group situations with emphasis on problem prevention and positive guidance strategies, recognition, communication, limit setting, problem solving and behavior modification. Students apply their knowledge of the environment's role in an actual work setting. Prerequisites: None. \*\*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  
This course provides an opportunity to apply knowledge and skill in an actual child development setting. Students will observe and assess children's behavior, facilitate free-choice play, implement adult-directed learning experiences, and maintain professional relationships. Prerequisites: CDEV1200, CDEV1210, CDEV1220, and CDEV1230 and/or instructor's permission.

**CDEV2320 Profiles of the Exceptional Child** 3 cr  
This course examines the development of children with special needs and prepares caregivers to integrate children with special needs into child development settings. Prerequisites: CDEV1210.

**CDEV2330 Advanced Child Guidance** 3 cr  
This course provides students with the opportunity to further examine guidance techniques and intervention strategies that are effective in dealing with children displaying a wide range of behaviors. Emphasis will be placed on the prevention and resolving of problem behaviors, use of behavior modification techniques, working with parents and designing behavior plans. Prerequisites: CDEV1210, CDEV1230.

**CDEV2500 Shadow Study** 1 cr  
This course provides students an opportunity to shadow a master teacher in a child development setting. Course goals are based on individual need. Emphasis may include observation of various child development settings, adult-child interaction or the role of a caregiver. Prerequisites: Instructor's permission.

**CDEV2540 Sensory/Motor Learning Experiences** 3 cr  
This course provides an overview of sensory/motor learning experiences in either home- or center-based settings. Students integrate knowledge of child development, learning environments, and teaching methods to promote sensory, fine motor, gross motor, perceptual-motor, and self-care skill development. Prerequisites: CDEV1210 or instructor's permission.

**CDEV2550 Cognitive/Multimedia Learning Experiences** 3 cr  
This course provides an overview of cognitive and multimedia learning experiences in either home- or center-based settings. Students integrate knowledge of child development, learning environments, and teaching methods to promote curiosity, attention, perception, memory, problem solving, logical thinking and media literacy. Prerequisites: CDEV1210 or instructor's permission.

**CDEV2560 Language and Literature Learning Experiences** 3 cr  
This course provides an overview of language, literacy and literature learning experiences in either home- or center-based settings. Students integrate knowledge of child development, learning environments, and teaching methods to promote whole language, conversation, literature, literacy and bi-lingualism. Prerequisites: CDEV1210 or instructor's permission.

**CDEV2570 Multicultural Learning Experiences** 3 cr  
This course provides an overview of multicultural learning experiences in either home- or center-based settings. Students integrate knowledge of child development, learning environments, and teaching methods to promote social-emotional development, self-esteem, and prosocial skills in a diverse society. Prerequisites: CDEV1210 or instructor's permission.

**CDEV2574 Contemporary Issues in Child Care** 3 cr  
This course gives students an opportunity to examine ways in which current societal and community issues impact the development of children and the well being of families. Cultural diversity and dynamics, bias and community resources including social services, are explored. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**CDEV2702 Special/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. Prerequisites: None.

**CDEV2703 Project Exceptional: First Signs: Red Flags and Referrals for Autism** 1 cr  
First Signs is a national training model that disseminates key information about developmental red flags as they relate to Autism and key referral information for educators to share with parents. Part of MN. Project EXCEPTIONAL that includes a unit on sharing concerns with families as part of the First Signs Training Workshop. Prerequisites: None.

**CDEV2704 Transforming the Difficult Child** 1 cr  
This course examines The Nurtured Heart Approach, based on the work of Howard Glasser. This unique approach is designed to help anyone working with children who have challenging behaviors. It combines four basic strategies for helping caregivers transform the way we see children who have high energy and high intensity from a challenge to a gift. Prerequisites: None.

**CDEV2710 Infant Toddler Social Emotional Growth and Development** 1 cr  
This module will explore infant and toddler social-emotional development for in-home and center-based settings. Students will integrate knowledge of temperaments and ages and stages of development so caregivers can create nurturing relationships, use positive child guidance techniques and develop positive social skills for infants and toddlers. Prerequisites: CDEV1210.

**CDEV2711 Infant Toddler Routines and Environments** 1 cr  
This module will explore ways to create developmentally appropriate environments and caregiving routines. Students will integrate knowledge of developmentally appropriate caregiving and teaching strategies in order to create a safe, healthy learning environment for infants and toddlers. Prerequisites: CDEV1210.

**CDEV2712 Infant Toddler Language and Cognitive Development 1 cr**  
This module will examine infant toddler language and cognitive development for in-home and center-based settings. Students will integrate knowledge of observation methods and ages and stages of development in order to facilitate infant-toddler language and cognitive growth and development. Prerequisites: CDEV1210 or instructor permission.

**CDEV2713 Culture, Family, and Providers 1 cr**  
This module will examine ways to be culturally sensitive and build partnerships with parents. Students will integrate knowledge of culturally sensitive/responsive caregiving techniques and curriculum approaches in order to enhance the learning environment of infants and toddlers from diverse backgrounds. Prerequisites: CDEV1210, Foundations of Child Development or instructor permission.

**CDEV2715 Sign Language in Early Childhood 1 cr**  
This course is designed to equip students with the tools they need to introduce signing in childcare environments with preverbal children. Students will examine research, review benefits of signing with hearing infants, practice modeling signs, identify strategies for parental involvement with sign, and discover how to create learning opportunities in daily activities. Prerequisites: None.

**CDEV2720 Supporting the School-Age Learner in Math 1 cr**  
This course combines an understanding of how children learn math and how to promote that learning by supporting the instruction in a primary/elementary classroom. Prerequisites: None.

**CDEV2721 Supporting the School-age Learner in Writing 1 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. Prerequisites: None.

**CDEV2722 Supporting the School-age Learner in Reading 1 cr**  
This course combines an understanding of how children learn reading and how to promote that learning by supporting the instruction in a primary/elementary classroom setting. Prerequisites: None.

**CDEV2723 Choices: Keys to Quality for School-Age Programs 1 cr**  
In this course you will learn how to structure your environment, not the children. You will learn why we should give school age children choices. What can we do about setting limits and the consequences we give? Through many different activities participants will enjoy learning how to define, establish, and implement choices in their childcare setting. You will also examine how to involve children in making healthy choices and establishing choices that are developmentally appropriate will also be explored. Prerequisites: None.

**CDEV2724 Child Guidance for School-Agers: Nurture & Growth 1 cr**  
This course emphasizes the basics in communication, relationships, guidance strategies and understanding child/youth development as the foundation to successful behavior guidance. Participants will improve communication skills, better understand human relationships and their own beliefs, as well as identify strategies for handling conflicts in settings. Prerequisites: None.

**CDEV2730 Learning To Use the Ounce Scale 1 cr**  
The Ounce Scale is an early childhood assessment tool used to support observation skills in early childhood settings. It is specifically designated to better understand children from birth to 42 months. It provides a system for understanding children, planning curriculum, communicating with parents and assessing child development. Prerequisites: None.

**CDEV2840 Practicum 3 cr**  
This course provides an opportunity to apply knowledge and skill in program planning for early childhood/special education leadership roles. Students identify, design, implement, and analyze a comprehensive program that includes schedules, daily plans, sensitivity to needs of individual children and families, integration of children with special needs, integration of community resources, co-operation with co-workers, and staff development considerations. Prerequisites: Instructor's permission.

## 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. Prerequisites: None.

**COMM1223 American Sign Language - Level II 3 cr**  
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, finger-spelling, fingerspelled loan signs, and commands. The course will include gestural communication techniques, visual discrimination and sentences. Receptive and expressive sign vocabulary building will be featured through class activities leading to basic and intermediate conversational skills in ASL. Information about the deaf community and its culture will be featured. Prerequisites: COMM1221.

## COMPUTER LITERACY

**COML1400 Introduction to Computers 3 cr**  
This online-enhanced course covers the basics of using Personal Computers (PC's) and the Microsoft Office Professional suite of programs, including Word, Excel, Access and PowerPoint to create documents, spreadsheets, databases and presentations. Students will also be introduced to the Internet, e-mail and the history of computers. This course meets the Dakota County Technical College's computer literacy requirement. Prerequisites: Recommend a typing speed of 25 words per minute is recommended. \*\*Articulated\*\*

## 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. Prerequisites: None.

**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, sub-contractor considerations, and building layout will be included. Prerequisites: None.

**CONC1602 Shop II: Brick and Block Construction 4 cr**  
This course will develop skill in concrete block construction. The course will utilize practice applications and actual construction projects. Cold weather shelter construction and block laying will be included. Prerequisites: None.

**CONC1604 Foundations, Concrete and Safety for Masons 4 cr**  
This is an intro-level course constructing footings and foundations. Techniques, procedures and practices for concrete block, poured walls, and flatwork are studied. Building forms for flatwork and walls are also studied. Prerequisites: None.

**CONC1605 Math for Masons 2 cr**  
The students use basic mathematics as it relates to the building construction industry. Students perform fundamental construction applications. Prerequisites: None.

**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. Prerequisites: None.

**CONC1610 Concrete Problems: Diagnosis, Prevention and Resolution****2 cr**

This course is focused on quality in concrete construction by teaching awareness of potential problems. Instruction will teach diagnosis and resolution of problems in fresh and hardened concrete. Customer job relations is integrated into the problem resolution instruction. Prerequisites: None.

**CONC1613 Shop III: Advanced Brick and Block Construction****4 cr**

This shop class would incorporate actual projects at various job sites to gain skills in flat and or poured concrete applications. Applications would include residential, agricultural, renovation, and commercial construction. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**DENTAL ASSISTANT****DENT1100 Dental Science****4 cr**

This course provides an overview of basic normal body structure and function including an understanding of the common disease process. Special attention will be given to a comprehensive overview of the oral anatomical structures, functions, and development of the oral cavity, as well as the identification of structures of the head and neck and their functions. Prerequisites: Admission to Dental Assisting Program. \*\*Articulated\*\*

**DENT1110 Pre-Clinical Dental Assisting****3 cr**

This course will introduce the student to the health and safety considerations for basic infection control and dental emergencies. Topics will include occupational exposure risks, personal protection, exposure control, hazard communication standards, and medical waste disposal, as defined by government guidelines and regulations including OSHA standards. Special attention will be given on how to reduce the risk of transmission of disease commonly found in the dental office between dental assistants and patients, including various sterilization and disinfection techniques. This course will also discuss the prevention and treatment of medical emergencies commonly found in the dental office. The student will have a basic understanding of the classification, administration, use, and effects of drugs commonly used in a dental office. Prerequisites: Admission to Dental Assisting Program. \*\*Articulated\*\*

**DENT1120 Dental Health****2 cr**

This course is designed to provide the student with the knowledge necessary to instruct a patient in proper oral hygiene and explain the benefits of fluoride. It also will provide the students with basic nutritional concepts and their practical applications. Prerequisites: Admission to Dental Assisting Program.

**DENT1130 Chairside Assisting I****3 cr**

This course introduces the student to the fundamentals of working in a dental office setting as a chairside assistant. It introduces concepts and techniques of basic equipment, supplies, four-handed dentistry, oral evacuation, and instrument identification and proper use. This course also provides an introduction to the psychology of patient management skills necessary for effective interaction with patients. Prerequisites: Admission to Dental Assisting Program. \*\*Articulated\*\*

**DENT1140 Dental Materials****3 cr**

This course provides the student with the knowledge and practical application of dental materials commonly found in the dental office. Emphasis will be on chemical and physical properties, uses, types, and applications. Students will be able to identify uses for specific dental products and be aware of specific care and storage properties of various materials. Prerequisites: Admission to Dental Assisting Program.

**DENT1250 Radiology****5 cr**

This course requires instructor approval if not taken in the semester sequence. This course assists the student with an understanding of how radiation is produced, principles of protection for the patient and the operator, and techniques for processing radiographs as well as identifying processing errors. This course covers the techniques used in exposing intraoral radiographs as well as technical errors and corrections. Students will learn to mount and evaluate films for their diagnostic value. The student will be exposed to the extraoral accessory films utilized in the dental office and the procedural techniques for exposing them. Prerequisites: Admission to Dental Assisting Program or instructor permission.

**DENT1260 Expanded Functions****5 cr**

This course prepares the assistant to perform all functions legally performed by a registered dental assistant (RDA) according to the Minnesota Dental Practice Act. This course covers the following expanded functions: alginate impressions for opposing models and study casts with bite registration, mechanical polishing of the clinical crowns, application of topical fluoride, rubber dam applications and removal, application of topical medications, orthodontic skills of preselecting orthodontic bands, removing and replacing ligature ties, and placement and removal of elastic separators. Also included are suture removal, placement and removal of periodontal dressings, adaptation of temporary crowns, cement removal, pit and fissure sealants, enamel etching, removal of bonding material, and nitrous oxide monitoring. Prerequisites: Admission to Dental Assisting Program or instructor approval.

**DENT1270 Chairside Assisting II****3 cr**

This course furthers knowledge of chairside assisting duties by presenting concepts of charting, tray set-ups, and the restorative process to help further the development of basic skills of four-handed dentistry. This course also introduces basic concepts of the different specialties in dentistry. The student will be taught to identify the instruments, materials, and procedures needed to gain skills in assisting the dentist with each specialty. Prerequisites: Admission to Dental Assisting Program.

**DENT1280 Dental Practice Management****2 cr**

This course is an overview of duties performed by a dental assistant with emphasis on patient registration, medical history forms, telephone skills, appointments, record keeping, 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 Microeconomics****3 cr**

This course is an introduction: price mechanisms, supply and demand, resource allocation, analysis of market structures, distribution of income, and business decisions regard to cost analysis. Prerequisites: None.

**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.

**ELECTRICAL CONSTRUCTION & MAINTENANCE TECHNOLOGY****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. Prerequisites: None. \*\*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 resonance. Prerequisites: None. \*\*Articulated\*\*

**ELEC1130 National Electrical Code I 3 cr**  
This course covers the requirements of the National Electrical Code. Prerequisites: None.

**ELEC1140 Blueprint Reading for Technicians 3 cr**  
This course investigates blueprint reading for electricians. This course consists of basic sketching and drawing techniques, applications of plans, scales and scaling applications, symbology, and print reading. Prerequisites: None.

**ELEC1210 Analog/Digital Electronics Theory 2 cr**  
This course covers the theory of semiconductors, power supplies, amplifiers, digital circuits, microprocessor applications, sensors, and signal coupling materials/devices. Prerequisites: ELEC1110, ELEC1120, MATS1205.

**ELEC1220 Analog/Digital Electronics Lab 4 cr**  
This course covers connecting, testing, and analyzing semiconductors, power supplies, amplifiers, digital circuits, microprocessor applications, sensors, and signal coupling materials/devices. Prerequisites: None.

**ELEC1230 Construction Skills and 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.

**ELEC1240 Construction Skills and Introduction to Wiring Lab 6 cr**  
This course covers lab experiences in material and design of residential wiring, wiring methods, selection of proper fastening devices, sizing of wire and boxes, branch circuit requirements, and use of blueprints. Prerequisites: ELEC1110, ELEC1120, ELEC1130. \*\*Articulated\*\*

**ELEC2110 Electrical Apparatus Theory 3 cr**  
This course covers the principles of direct current motors, single- and three-phase motors and transformers, and proper use of meters and test equipment. Prerequisites: ELEC1110, ELEC1120, MATS1205.

**ELEC2120 Electrical Apparatus Lab 6 cr**  
This course covers analysis and troubleshooting of direct current motors, single- and three-phase motors, transformers, and proper use of meters and test equipment. Prerequisites: ELEC1110, ELEC1120, MATS1205.

**ELEC2131 Programmable Logic Controllers Theory 2 cr**  
This course covers theory of logic applications; connecting, programming, and operating programmable logic controllers; and AC and DC electronic drives. Prerequisites: ELEC1110, ELEC1120, ELEC1211, ELEC1221.

**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, ELEC1211, ELEC1221.

**ELEC2210 National Electrical Code II 3 cr**  
This course covers continued requirements of the National Electrical Code. Prerequisites: ELEC1130.

**ELEC2220 Electrical/Electronic Controls and Systems Theory 2 cr**  
This course covers analysis and troubleshooting of logic controllers, AC and DC electronic drives, energy management systems, heating and cooling systems, fire alarm and security systems, and integrated voice/video/data and infrared systems. Prerequisites: ELEC2130, ELEC2140.

**ELEC2230 Electrical/Electronic Controls and Systems Lab 4 cr**  
This course covers analysis and troubleshooting of programmable logic controllers, AC and DC electronic drives, energy management systems, heating and cooling systems, fire alarm and security systems, and integrated voice/video/data and infrared systems. Prerequisites: ELEC2130, ELEC2140.

**ELEC2241 Industrial & Maintenance Wiring Theory & Lab 3 cr**  
This course covers the use of materials and design of industrial wiring, industrial tools and equipment, service equipment, and maintenance technology. Prerequisites: ELEC1230, ELEC1240.

**ELEC2251 Commercial & Maintenance Wiring Theory & Lab 3 cr**  
This course covers the use of materials and design of commercial wiring, commercial tools and equipment, service equipment, and maintenance technology. Prerequisites: ELEC1230, ELEC1240.

**ELEC2260 Heating, Ventilation, and Air Conditioning Wiring 3 cr**  
This course covers the use of materials and design of materials and equipment for heating, ventilating, and air conditioning residential, commercial and industrial buildings. Prerequisites: ELEC1230, ELEC1240.

## ELECTRICAL LINEMAN

**ELLW0098 Introduction to Climbing 1 cr**  
This course covers the introduction to the equipment used for climbing. The use of this equipment will be applied to the act of learning to climb safely and correctly. Prerequisites: None.

**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: ELLW1098.

**ELLW1120 Utility Equipment and Tools 2 cr**  
This course offers an introduction to the tools used in the line industry. Personal tools, climbing tools, and the introduction to the safe operation of carrier-mounted devices are included. The digger/derrick and the personnel-carrying aerial devices will be covered. Prerequisites: ELLW1098.

**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. Prerequisites: None.

**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 cr**  
This course covers more of the material that is in ELLW1140 Distribution IIA. Prerequisites: ELLW1110, ELLW1120, and concurrent enrollment in ELLW1140.

**ELLW1150 Construction Planning and Practices 2 cr**  
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 and concurrent enrollment in ELLW1161.

**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 cr**

This course covers the conversion of single-phase to multi-phase applications. The use of three-phase hot stick line applications will be applied to the changing of poles, deadends, crossarms, and running angles. The maintenance of three-phase systems will be applied. The use of insulated fiberglass boards and ladders, nylon hot line hoists, and block and tackle will be applied. Safety applications will be emphasized at all times throughout this course. Prerequisites: Concurrent enrollment in ELLW1172.

**ELLW1172 Line Construction and Maintenance B****4 cr**

This course covers the continuation of line construction and 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****2 cr**

This course covers the practices and techniques used in cable and fault locating. The student will understand and demonstrate all safety practices in the application and operation involved with the equipment used in this course. Prerequisites: None.

**ELLW1185 Electrical Industry Search Skills****1 cr**

This course covers a comprehensive view of the aspects incurred in job search activity. It will cover locating job openings, hidden markets, assessing employment strengths, writing resumes, writing cover letters, completing applications, preparing for interview questions, and using the computer highway for job searching. Prerequisites: None.

**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 (EMS RB). Upon successful completion, students will be eligible to take the National Registry of EMT's written and practical examinations for National Certification. Prerequisites: HEAL1010 CPR for the Professional Rescuer (AHA Healthcare Provider) prior to EMT course completion.

**EMRG1008 EMT Refresher****2 cr**

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 MNEMS RB. 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 (EMS RB). 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.

**EMRG1017 First Responder****3 cr**

This course is design for individuals who are first on the scene of a medical or trauma emergency. It is designed to teach responsibility in emergency care of the seriously ill or injured, as well as develop the skills and knowledge necessary to manage patient care until the arrival of ambulance personnel. Upon suc-

cessful completion of the First Responder course students will be certified through the Minnesota Emergency Medical Services Regulatory Board (EMS RB) Prerequisites: HEAL1010 - CPR for the Professional Rescuer (AHA Healthcare Provider) prior to course completion.

**EMRG1018 First Responder Refresher****2 cr**

This course provides basic renewal training for individuals who are currently certified as First Responders. It is designed to teach and develop the most current skills and knowledge necessary to maintain certification through the Minnesota Emergency Medical Service Regulatory Board (EMS RB) 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****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. Prerequisites: None.

**ENGL0118 Basic English and Writing Review****3 cr**

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. Prerequisites: None.

**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. Prerequisites: None.

**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****3 cr**

This course is designed to develop effective reading and clear thinking skills that are required to be successful in college today. Prerequisites: None.

**ENGL1100 Writing and Research Skills****3 cr**

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: Meet qualifying scores on ACCUPLACER test OR successfully complete ENGL0130 OR receive instructor's approval.

**ENGL1102 Technical Written Communications****3 cr**

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.

**ENGL1200 Technical Writing****3 cr**

This course is designed to enhance students' abilities to write technical documents. The content covered will include proposals, research reports, technical manuals, feasibility studies, and process reports. Prerequisites: ENGL1100.

**ENGL1300 Introduction to Creative Writing****3 cr**

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.

**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. Prerequisites: Recommended ACCUPLACER score over 25%.

**ENGL1550 Introduction to Literature** 3 cr  
This course introduces the study of literature as a mode of discourse for defining, exploring, and expressing human experience. There is an emphasis on learning the skills of reading and writing about literature. This course will cover fiction, drama, and poetry, with attention also paid to literary non-fiction. Thus the class will introduce students to such basic concepts as (for fiction) plot structure, point of view, 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. Prerequisites: None.

**ENGL1625 Film Studies** 4 cr  
This course emphasizes the review and analysis of films. This will include how movies reflect and shape the hopes, dreams, and aspirations of the society that produces them. These films will be from various genres and span the entire time frame that movies have been a popular phenomenon. Also included in this course is logical reasoning. Prerequisites: None.

**ENGL1650 Greek Mythology** 4 cr  
This course emphasizes the review and analysis of various Greek myths. This will include how these myths have reflected and shaped art and history. Also included in the course are critical reading and logical reasoning. Prerequisites: None.

**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.

**ENGL1800 Mystery and Detective Literature** 3 cr  
This course introduces the study of mystery and detective literature. There is an emphasis on exploring the relationship between contemporary mystery fiction and the stories of antiquity. Students will read a wide variety of literature and explore the texts through a variety of different literary approaches. The course will introduce students to such basic concepts as plot structure, point of view, characterization, imagery and symbolism, setting, tone, irony, and style. Prerequisites: None.

## ENGLISH FOR SPEAKERS OF OTHER LANGUAGES

**ESOL0030 ESOL Listening and Speaking I** 4 cr  
In this intermediate level course, non-native speakers will work to understand the meaning of messages beyond day to day comprehension for survival. It is intended to help students increase proficiency in listening comprehension, pronunciation, and fluency. Students will also learn strategies that will lead to language acquisition. Prerequisites: A beginning level background in English and the required ACCUPLACER score.

**ESOL0032 ESOL Reading I** 4 cr  
This course covers the basics of reading English for non-native speakers at the intermediate proficiency level. Prerequisites: A beginning level background in English and the required ACCUPLACER score.

**ESOL0035 ESOL Writing and Grammar I** 4 cr  
This course is part one of a study and review of basic English grammar and writing for non-native students at the intermediate proficiency level. Prerequisites: An appropriate score on the ACCUPLACER.

**ESOL0040 ESOL Listening and Speaking II** 4 cr  
In this intermediate level class, students will focus on listening comprehension and speaking. It is intended to help students increase proficiencies in listening comprehension, pronunciation, and fluency. Prerequisites: An appropriate 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: ESOL Reading I 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 AND 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. Prerequisites: None.

**EXER1015 Personal Health and Wellness** 3 cr  
A comprehensive course that focuses on disease prevention, physical activity, nutrition, and general health facts. The course is designed to help each student take responsibility for their overall health and learn practical ways of achieving a safe and healthy lifestyle. Course topics include self-assessment, wellness improvement plan, personal program design, exercise research investigation, and exercise critical thinking issues. Course syllabus information is subject to change without notice. Prerequisites: None.

**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. Prerequisites: None.

**EXER1025 Physical Conditioning** 2 cr  
This course is designed to teach students the numerous methods involved in the training of individuals and athletes in order to develop conditioning to achieve a desired effect. The course will focus on training students to become proficient in the use of plyometric exercise as well as spring mechanics, speed development, flexibility training, aerobic maintenance, and agility work. Specificity toward skills to be developed will be emphasized. Prerequisites: None.

**EXER1027 Olympic and Explosive Weightlifting** 2 cr  
This intermediate-level course is intended to teach students elite strength training methodologies and techniques designed to develop athletes to a high level of performance. The course will give students a working knowledge on program design, nutrition, recovery, metabolic considerations, and the biomechanics involved in the sport of Weightlifting as well as elite athlete strength training. The course provides each candidate with a body of knowledge and expertise to enable a student to teach and train higher-level athletes in explosive free weight movements safely and effectively. At the end of the course, the USA Weightlifting Senior Coach exam will be given. Each student will have the opportunity of gaining a USA Weightlifting Senior Coach Certification after completing the strength-training course. Prerequisites: None.

**EXER1045 Organization and Management of Sport** 3 cr  
Designed to introduce students to the functions of management and practical use of management skills as they relate to sporting activities and events. Includes basic study of organization, budget, legal aspects and leadership. Prerequisites: None.

**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. Prerequisites: None.

**EXER1065 Psychology of Sport and Performance** 3 cr  
This course examines thoughts, emotions, and feelings associated with performing one's best in sport and other areas. Topics covered include: realizing potential; performance goals; motivation; mental readiness; distraction control; group dynamics; injuries and rehabilitation; depression, eating disorders and substance abuse; and age and gender issues. Prerequisites: None.

**EXER1200 Team and Individual Games** 2 cr  
Development and refinement of skills encountered through training, competing or organizing a number of team games such as flag/touch football, softball, soccer, speedball, volleyball and basketball. (subject to season/semester). Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**EXER2060 Personal Training II** 2 cr  
A lecture/laboratory covering an overview of various training methods and facilities used in one-on-one training, group training, and sports team training. Topics include client motivation, lifestyle modification coaching, program periodization, plyometrics, rehabilitation concerns, and exercise facility design. Prerequisites: None.

**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. Prerequisites: None.

**EXER2115 Applied Exercise Physiology** 3 cr  
This course will present an overview of the most important concepts for coaches, fitness instructors, or practitioners in a health-science field. It is not the intent to study each topic in depth. This course will feature laboratory activities, demonstrations, and hands-on learning experience, and from these activities, conclusions will be discussed regarding concepts. Prerequisites: None.

**EXER2125 Applied Biomechanics and Movement Anatomy** 3 cr  
An in-depth course covering the study of biomechanics and the anatomical foundations of human movement. Topics include: muscle contraction, muscle origins and insertions, muscular and skeletal actions, articulations, and human movement fundamentals. Prerequisites: BIOL2000 recommended.

**EXER2130 Foundations of Sport Science** 3 cr  
An introductory study of anatomical, mechanical, maturational, psychological and physiological kinesiology as it applies to the practice of coaching. The major focus is to present the scientific principles that constitute the basis for sound athletic coaching practices. Prerequisites: None.

**EXER2225 Theory of Coaching** 2 cr  
This course includes skill analysis, motivation techniques, teaching progression, responsibilities, qualities, coaching philosophies, coaching skills, practice management, psychology of coaching, game management, coaching methods, statistics and team organization of various sports. The course also includes exposure to some of the great coaches, past and present. Prerequisites: None.

**EXER2235 Intro to Athletic Training** 3 cr  
This course is designed to provide the entry-level exercise science practitioner with an overview of the knowledge's, competencies, and skills of athletic training. Prerequisites: None. \*\*Articulated\*\*

**EXER2240 Corporate Wellness/Health Promotion** 3 cr  
This course provides the framework for implementing and facilitating effective corporate wellness programs. Topics include: health education techniques, motivation, sales and marketing strategies, working with the business professional, and assessment of corporation needs. Prerequisites: None.

**EXER2250 Group Fitness Instruction** 2 cr  
An introductory course to the fundamental elements of group fitness instruction. Areas of focus include: music selection, choreography, cuing, leadership skills, and motivational techniques. A variety of instruction formats will be taught including: step, cardio, kick boxing, aqua, and specialty classes. Strongly recommended for those pursuing careers in Corporate Wellness. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**EXER2290 Legal Aspects of Sport** 3 cr  
The purpose of this course is to provide students with an adequate background to ensure their comfort when dealing with legal issues surrounding sport. Students will learn of the inherent risk associated with sport management and administration. They will be provided with a history of legal arguments, defenses, and judgments in the sport arena. Prerequisites: None. Varies.

**EXER2295 Social and Ethical Aspects of Sport** 3 cr  
This course examines how sport is affected by society, and how society is affected by sport; ethical and moral issues in sport for athletes, coaches, administrators, staff personnel and media; and legal considerations in roles related to sport. Prerequisites: None.

## GM AUTOMOTIVE SERVICE EDUCATIONAL PROGRAM (ASEP)

**ASEP1101 Automotive Fundamentals** 3 cr  
This course is designed to develop the basic concepts needed for the General Motors Automotive Service Educational Program. This unit covers basic automotive safety and procedures in the shop. Different types and uses of fasteners, including thread repair, will be covered. The proper procedures for writing repair orders and parts requisitions will be covered. The use of General Motors service bulletins, as well as service and repair manuals, will be examined in detail, including wiring schematics. Instruction and GM certification in the General Motors Specialized Electronics Training program (GM-SET) is also a part of this unit. Prerequisites: None. \*\*Articulated\*\*

**ASEP1102 Electrical and Fuel Systems** 3 cr  
This course begins by examining batteries, charging systems and starting systems used by General Motors. Proper testing methods utilizing various types of equipment will be stressed, followed by unit repair procedures. All General Motors' ignition systems and emission controls will be examined. The fundamentals of GM engine computer systems and related sensors will be addressed. Diagnosis, adjustments and repair of component parts will be covered. An introduction to oscilloscopes and four-gas analysis will also be covered. Prerequisites: ASEP1101.

**ASEP1103 Driveability** 3 cr  
This course will cover General Motors engine control systems. Included will be a thorough examination of automotive microprocessors, sensor and actuator operation, DIS ignitions, TBI, PFI and other GM fuel systems. The proper use of service manual diagnostic information and trouble charts will be covered. The use of scan tools including TECH 1, TECH 2 and GM-PC for diagnosis will be covered in detail. This unit includes a continuation of scope and infrared operating and diagnosis. Prerequisites: ASEP1101 and ASEP1102; or instructor approval.

**ASEP1104 Body Electronics** 3 cr  
This course will cover General Motors body electrical systems. A study of the theory, diagnosis, and repair of electric windows, door locks, power seats, mirrors, electronic and conventional instrumentation, windshield wipers, cruise controls, theft deterrent systems and microprocessor-controlled body electronics is included. The automatic and electronic climate control systems will be addressed in this unit. The Supplemental Inflatable Restraint system (SIR) and its various applications and functions will also be examined. Prerequisites: ASEP1101, ASEP1102, ASEP1103; or instructor approval.

**ASEP1105 Heating And Air Conditioning** 3 cr  
This course is a study of the theory, operation, maintenance, diagnosis and repair of General Motors heating and air conditioning systems. The basic refrigerant cycle will be addressed, as well as system components and controls used by GM. Emphasis will be on GM CCOT and VDOT systems. Included will be an examination of manual controls used in conjunction with GM heating and air conditioning systems. Reclaiming and recycling of R-12 and R-134A and retrofitting will also be covered in this unit. Prerequisites: ASEP1101.

**ASEP1108 Brake Systems** 3 cr  
This course covers theory and practice of servicing brake systems on General Motors cars. Included will be disc/drum brakes, power brakes, diagonal split, anti-lock brakes, and four-wheel disc brakes. Prerequisites: ASEP1101.

**ASEP1201 Dealer Work Experience I** 8 cr  
This is on-the-job training at a GM dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college's ASEP staff and ASEP coordinator at the dealership. Prerequisites: Enrollment in GM ASEP and successful completion of the previous semester.

**ASEP1202 Dealer Work Experience II** 8 cr  
This is on-the-job training at a GM dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college's ASEP staff and ASEP coordinator at the dealership. Prerequisites: Enrollment in GM ASEP and successful completion of the previous semester.

**ASEP1204 Dealer Work Experience IV** 8 cr  
This is on-the-job training at a GM dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college's ASEP staff and ASEP coordinator at the dealership. Prerequisites: Enrollment in GM ASEP and successful completion of the previous semester.

**ASEP1205 Dealer Work Experience V** 8 cr  
This is on-the-job training at a GM dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college's ASEP staff and ASEP coordinator at the dealership. Prerequisites: Enrollment in GM ASEP and successful completion of the previous semester.

**ASEP1212 Advanced Diagnostics/ New Model Update** 1 cr  
This course provides the student with additional electronic fuel and body systems diagnosis and repair procedures. The most current factory diagnostic procedures will be stressed. Emphasis will be on GM-PC, TECH 1, and TECH 2, as well as additional lab scope and infrared analysis. Also, any new products or systems introduced on GM vehicles that have not been previously covered will be addressed. Prerequisites: ASEP1101, ASEP1102, ASEP1103, and ASEP1104.

**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. Prerequisites: None.

**ASEP2110 Automatic Transmissions** 3 cr  
This course covers the removal, disassembly, operation, reconditioning, assembly, installation and diagnosis of General Motors automatic transaxles and transmission. Prerequisites: None.

**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. Prerequisites: None.

**ASEP2303 Dealer Work Experience III** 10 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.) Prerequisites: None.

**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\*\*

**HEAL1012 Workplace Training Standard First Aid** 1 cr  
This course is designed to give individuals the knowledge and skills necessary to recognize and provide basic care for injuries and sudden illness in the workplace until advanced medical personnel arrive and take over. Course includes modules on Ergonomics; Back Injury Prevention; Workplace Violence Awareness; Preventing Disease Transmission; Adult CPR/AED; Slips, Trips and Falls; Stress Management; and Heart of the Matter. Prerequisites: None.

**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.) Prerequisites: None. \*\*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. Prerequisites: None.

**HEAL1060 Nursing Assistant** 5 cr  
This course introduces concepts of basic human needs and the function of the nursing assistant in long term care and or home health care. Basic nursing skills will be demonstrated and practiced in the laboratory setting. Upon successful completion of classroom studies, the student will participate in 24 hours of supervised clinical experience in a long term care setting. This course is a prerequisite for the Practical Nursing Program. It meets the objectives of Federal State Statutory requirements for nursing assistant training. Prerequisites: None. Individuals who provide direct contact services to clients of licensed facilities are required to have complete criminal background studies. Disqualified persons will not be permitted to work in these facilities.

**HEAL1070 Trained Medication Aide 2 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.

**HEAL1200 Phlebotomy 1 cr**  
This course will cover the process of collecting 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: None.

**HEAL1400 Nutrition and Diet Therapy 2 cr**  
This course provides a study of basic nutritional concepts. Diet guidelines and menu planning are emphasized using the Food Guide Pyramid. Therapeutic diets are discussed as related to specific disease conditions. Prerequisites: The student must meet admission requirements for nursing core courses, including ACCUPLACER scores. \*\*Articulated\*\*

**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. Prerequisites: None.

**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. Prerequisites: None.

**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.) Prerequisites: None.

## HEAVY CONSTRUCTION EQUIPMENT MECHANIC

**HCEM1101 General Shop Mechanics - Introduction 2 cr**  
Students achieve a basic understanding of skills needed in the heavy equipment field. Some areas covered are safety, hand and power tools, hand tool projects, flaring, soldering, gears, chains, bearings, seals, fuels, lubricants, fasteners, fittings, wires and connectors, belts, pulleys, couplings, and precision measuring instruments. Prerequisites: None. \*\*Articulated\*\*

**HCEM1110 Welding and Flame Cutting 2 cr**  
The application of several welding methods used in the Heavy Equipment Industry is covered in this course. Safety, theory, and practice will be taught in a lab setting. Cutting and heat bending are also included. Prerequisites: HCEM1101 or instructor's approval. \*\*Articulated\*\*

**HCEM1132 Heavy Duty Electrical 3 cr**  
This is an introduction to electricity as applied to heavy equipment covering electronic theory and magnetism. Emphasis is on theory, diagnosis and repair of basic starting, charging, lighting and ignition systems. This course prepares students for HCEM1234 through classroom instruction and lab practice. Prerequisites: None.

**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, HCEM1130, and HCEM1140.

**HCEM1234 Heavy Duty Electronics 3 cr**  
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 cr**  
This course teaches engine tear down, failure analysis, cylinder head repair and major overhaul, and use of proper precision measuring instruments on engines used in the heavy equipment field such as 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. Prerequisites: None.

**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: HCEM1245, HCEM1250, and HCEM1255.

**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: HCEM1245, HCEM1250, and HCEM1255.

**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 hydraulic-assisted transmissions and torque converters, along with basic fundamental principles of hydraulics, torque multiplication, gear ratios, disassembly, assembly, and adjustment procedures are covered. Prerequisites: HCEM1101 and HCEM1130 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 HCEM1130 or instructor's approval.

**HCEM2145 Hydrostatic Systems** 3 cr  
Students study basic principles of operations, system components, testing procedures, repair techniques, adjustments, and preventive maintenance procedures. Prerequisites: HCEM1101 and HCEM2135 or instructor's approval.

**HCEM2175 Specialized Lab III** 3 cr  
Students gain additional shop experience for entry-level positions in industry. Students diagnose, record, and make repairs on customer equipment including crawlers, loaders, motor graders, backhoes, etc. Repairs are made on heavy equipment systems such as hydraulic, brake, electrical, chassis, and sheet metal. After repairs, students complete the work repair order. Prerequisites: First-year courses HCEM1101, HCEM1130, 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, HCEM1130, 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, HCEM1130, 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** 2 cr  
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** 4 cr  
Students will be taught how to perform routine maintenance and troubleshooting procedures in order to identify and repair or replace faulty components within a climate controlled cab in heavy construction equipment. Air-conditioning theory will be discussed. Prerequisites: HCEM1101, HCEM1130, HCEM2135.

## HEAVY DUTY TRUCK TECHNOLOGY

**HDTT1100 Truck Technology Fundamentals** 4 cr  
This course covers shop procedures and safety in the truck shop such as safety in the use of hand tools, power tools, hoists, jacks, and other equipment used by a heavy duty truck technician. Different types 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. Prerequisites: None. \*\*Articulated\*\*

**HDTT1103 Air Brake Systems** 6 cr  
This course covers the theory of compressed air and its application to the brake system. Air system components will be identified and their functions studied individually and within the entire system. Emphasis will be placed on general repair and trouble-shooting. The course will cover identification of the mechanical components of the foundation brake system and their application, including all wheel/axle components. Theory of operation, removal, repair, and replacement along with diagnostic and testing procedures are covered in this course. Prerequisites: None.

**HDTT1106 Welding Procedures** 2 cr  
This course covers basic position welding techniques of the different welding applications used in the heavy truck repair industry. This course will cover applications of oxyacetylene welding, brazing, cutting, heating, arc welding, and wire-feed (MIG). Prerequisites: None. \*\*Articulated\*\*

**HDTT1109 Fluid Power Systems** 2 cr  
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. Prerequisites: None.

**HDTT1212 Preventive Maintenance** 4 cr  
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. Prerequisites: None.

**HDTT1215 Suspensions and Steering Systems** 4 cr  
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. Prerequisites: None.

**HDTT1218 Electrical Systems** 4 cr  
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. Prerequisites: None. \*\*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. Prerequisites: None.

**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. Prerequisites: None.

**HDTT2104 Drive Train II** 4 cr  
This course covers the theory of operation, repair, removal, inspection, and installation of the clutch and drive shafts. Prerequisites: None.

**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. Prerequisites: None.

**HDTT2110 Diesel Fuel Systems** 1 cr  
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. Prerequisites: None.

**HDTT2213 Diesel Engine Fundamentals** 4 cr  
This course covers the basic components of the diesel engine as well as their removal, inspection, cleaning, repair, proper measuring, replacement, and/or reuse. Prerequisites: HDTT2107.

**HDTT2216 Diesel Electronics** 3 cr  
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: HDTT2128.

**HDTT2228 D.O.T. Certification (Elective)** 1 cr  
This course covers the proper method of performing the federal and state D.O.T. truck inspection. Use of inspection forms and permit stickers will also be covered. After completion of this course and final exam, the student will be a certified truck inspector and able to perform both federal and Minnesota D.O.T. inspections. Prerequisites: None.

## 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. Prerequisites: None.

**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. Prerequisites: None.

**HIST1300 World History** 4 cr  
Big History is a new approach to World History that widens the scale of study from a few thousand years to the entire past. Rather than studying World History through the lens of different cultures, nations, and civilizations, Big History starts 13 billion years ago and attempts to place the human species in the context of the universe. This course begins with the scientific account of the universe's beginnings and then describes the formation of the earth including its flora and fauna. The majority of the course concentrates on the major trends and developments of human societies from the Paleolithic, throughout the agrarian, and into the modern era. Prerequisites: College reading level recommended.

**HIST1400 American Environmental History** 3 cr  
This course examines the interaction between humans and the natural world in the United States from the late nineteenth century to the present. In addition, heavy emphasis is placed on recent Minnesota Environmental history. The course considers such diverse topics as the impact of industrialization and urban growth on

the environment, the emergence of ecology and green politics, and the creation of the idea of Nature in American culture. Students will be expected to develop an historical understanding of the major themes of modern American environmental history; relationships between human activity and pollution in cities, emergence of reform movements and environmental regulation, relationships between increasing urban growth and increasing environmental concern, and the rise of environmental politics in both local and national settings. Prerequisites: The course is taught for students interested in American history as well as those seeking a better understanding of environmental issues. Students will need access to a computer and be familiar with word processing programs and browsing the Internet.

**HIST1450 History of Minnesota** 3 cr  
This three-credit history course explores the history of Minnesota from the ice age and early Native Americans to the events of today. Through a combination of three textbooks, internet sites and field trip visits to historical sites students can gain an appreciation of the contributions made by those who came before us in the state we now call Minnesota. Prerequisites: None.

**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." Prerequisites: None.

## HUMANITIES

**HUMA1100 Introduction to Humanities** 4 cr  
This course emphasizes eight disciplines as they have grown and influenced each other and the societies that produced them through the ages in western history. These disciplines are: literature, art, architecture, philosophy, music, science, religion, and technology. The course will include analysis of written texts, pictures, and ideas. Prerequisites: None.

## INFORMATION SYSTEMS TECHNOLOGY

**ISTC1000 Introduction to Information Systems Management** 3 cr  
This course provides an overview of computer hardware, relational databases, local area networks and programming. Information Systems terminology and industry acronyms associated with data, voice and video are also covered. Prerequisites: None.

**ISTC1010 Microcomputer Maintenance** 3 cr  
This course is designed for the PC novice to learn how to maintain, upgrade, and repair personal computers. Participants will remove and replace motherboards, and various input/output devices. Hard drives maintenance procedures (formatting) and loading operating systems will be covered. Prerequisites: None.

**ISTC1030 Operating Systems I** 3 cr  
This course covers operating system administration with the use of command line for microcomputers. Topics include booting and configuring the system, the use of internal commands and external commands, file management, networking, and writing of batch files. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**ISTC1205 Web Client Programming 3 cr**  
This course covers technologies used to create Internet client applications. Students will create numerous web applications using scripting tools/languages. The course includes the topics of cascading style sheets, tables, frames, forms and multimedia integration. Emphasis will be placed on the design, development, deployment and maintenance of the interactive web sites. Prerequisites: ISTC1300.

**ISTC1210 Web Server Programming 3 cr**  
This course covers server-side components used to create dynamic web sites. Several technologies such as middleware, scripts and servlets will be explored. Methods and tools for integrating data will be emphasized including those provided as open source. Prerequisites: ISTC1300.

**ISTC1230 Systems Analysis and Design 3 cr**  
This course provides coverage of systems analysis and design theories and techniques. Both the traditional, structured approach and the object-oriented approach to systems development will be explored. Students will learn the theory of analysis, design and implementation following the guidelines of the Systems Development Life Cycle. Students will demonstrate system modeling with UML. Prerequisites: ISTC1300 or equivalent programming experience.

**ISTC1300 Introduction to Programming 3 cr**  
This course provides the beginner programmer with a guide to developing programs using structured programming logic. Analysis, design, coding, testing and debugging will be covered. Students will be exposed to various design techniques, such as flowcharts, as prequels to writing code. Programming key points include structured programming, modularized programming, decision-making, looping, arrays, data file utilization, arrays and object-oriented classes. Students will be exposed to procedural and object-oriented programming. Students will be required to generate simple programs for this course. Prerequisites: None.

**ISTC1400 Wireless Systems 3 cr**  
This course provides hands-on experience to wireless networking. The student will explore the latest wireless technologies following networking industry 802.11x standards. This course includes the planning, designing, installing and configuring wireless LANs from the principal Wireless LAN vendors, and explores the interrelationship of their hardware, software and applications. Prerequisites: ISTC1040 or equivalent networking experience.

**ISTC2005 Network Systems II 3 cr**  
This course is the second course in a four-course sequence designed to introduce students to local area network hardware router installation and configuration. The course is designed around OSI 7-layer Reference model and is the second course in the sequence to help students prepare to take the CCNA certification exam. Prerequisites: ISTC1040.

**ISTC2010 Network Systems III 3 cr**  
This course is an introduction to layer-2 switching, IPX, VLANs, Access Control Lists, and IGRP. This is the third course in a four-course sequence designed to prepare individual students for the CCNA certification exam. Prerequisites: ISTC2005.

**ISTC2015 Network Systems IV 3 cr**  
This course focuses on WANs and Broadband infrastructure design, configuration and implementation as it relates to the 7 layer OSI model 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 3 cr**  
In this course the student is expected to learn the procedures underlying server operating systems. The course will cover network design, installing Servers, configuring and optimizing Servers, managing users and groups, disk quotas, basic and dynamic disks, security, and print management. Prerequisites: ISTC1040, ISTC1033.

**ISTC2040 Database Management 3 cr**  
This course focuses on working with an enterprise-level database management system as well as basic administrative tasks such as installations. The use of Structured Query Language (SQL) will be emphasized as it relates to data definition and data manipulation. Topics also include triggers and stored procedures. Prerequisites: ISTC1050.

**ISTC2050 Data Structures 3 cr**  
This course introduces the student to the theory, design and implementation of common data structures and related algorithms. Topics include linked lists, recursion, stacks, queues, search algorithms, sorting algorithms, graphs and binary trees. Students will write numerous programs to demonstrate comprehension of the course topics. Prerequisites: ISTC1300 or equivalent programming experience.

**ISTC2065 Security II: Firewalls 3 cr**  
This course is designed for the network administrator who needs to learn the basics of VPN security and network firewalls. Basic installation techniques are covered along with how to make an intelligent choice of firewall technology. Basic firewall troubleshooting is also presented. This course aligns with the CheckPoint CCSA Certification outline. Prerequisites: ISTC1060.

**ISTC2070 Security III: Forensics 3 cr**  
This course provides the student with methods for conducting a computer forensics investigation including procedures, tools, ethics, and analysis. This course maps to the objectives of the International Association of Computer Investigative Specialists (IACIS) certification. Prerequisites: ISTC2065.

**ISTC2100 Project Management 3 cr**  
This course will provide fundamentals of planning and managing projects for information system (IS) organization. This includes creating a capstone project which will involve schedules, using critical path, assigning resources, and tracking progress. Focus is on topics that are unique to management of projects in an IS department. Prerequisites: Students should take this course in their last semester of studies.

**ISTC2120 Financial Accounting for Information Systems 3 cr**  
This course focuses on the fundamentals of the accounting system, as well as examines financial reporting from the perspective of decision makers outside the company. The topics will integrate these inside/outside perspectives by studying the accounting activities that take place inside the company and evaluating their impact on users outside the company. Topic coverage is paced appropriately for non-accounting majors. Prerequisites: None.

**ISTC2140 Digital Convergence 3 cr**  
This course will provide hands-on experience to voice over IP technology. The student will explore the difference between analog and digital signals, public switched telephone, circuit switched, and packet switched networking. Prerequisites: ISTC1040 or equivalent networking experience.

**ISTC2310 Java I 3 cr**  
This course covers the JAVA language and how to use it to create a variety of applications. The course will cover object-oriented topics such as classes, methods, constructors, inheritance and polymorphism as well as primitive data types and control structures. The course will include creating applications that utilize the JAVA Swing Classes. Object-oriented design using the unified Modeling Language will also be introduced. Although this is an introductory Java course, students are expected to have an existing knowledge of programming concepts. Prerequisites: ISTC1300.

**ISTC2315 Java II 3 cr**  
This course builds on JAVA 1 to cover some of JAVA's more advanced capacities. Topics covered include the embedding of simple applets in web pages, enterprise wide development of distributed n-tier client/server applications, Remote Method Invocation (RMI), JAVA Database Connectivity (JDBC), server side JAVA programming (Servlets/JSP), collections and data structures. Prerequisites: ISTC2310 or equivalent Java programming experience.

**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 - Critical Thinking. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None. \*\*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. Prerequisites: None.

**IDES1120 Critical Thinking and Programming 4 cr**  
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 Verbal and Visual Presentation 3 cr**  
This course covers the process of making visual and verbal presentations. These presentations will be focused on the appropriate industry needs. Students will incorporate the basic steps in making a verbal presentation, including the basics of the sales process, and study the various ways of making a visual presentation, including sketching techniques that can be implemented in a creation. One-point and two-point perspectives will also be included. Prerequisites: Concurrent enrollment in IDES1100 and IDES1110.

**IDES1206 Residential Studio I 3 cr**  
This course covers the basic skills necessary to design both public and private interior spaces in a home. The interior design process will be applied, with an emphasis on the design development phase (refining the design concept and focusing on design details). Students will investigate residential furnishing, lighting, and finish sources and will be introduced to specifying these products. Residential building systems (electrical, plumbing, and HVAC) will be introduced. Students will apply their programming design fundamentals, as well as verbal and visual communication skills, in progressively complex residential interior design projects. Visual tools will include manually-drafted floor plans, presentation elevations, and presentation boards. Prerequisites: IDES1100, IDES1110, IDES1120, and IDES1135.

**IDES1217 Commercial Studio I 3 cr**  
This course covers the basic skills necessary to design interior spaces in commercial settings. The interior design process will be applied, with an emphasis on the design development phase (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.

**IDES1230 History of Art, Architecture and Interiors 4 cr**  
This course covers the history of art, architecture, and interiors, from ancient times through the 21st century, with which an interior designer must be familiar for use in industry applications. Prerequisites: None.

**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. Prerequisites: Concurrent enrollment in IDES1235.

**IDES2100 Interior Design Career Directions 1 cr**  
This course prepares the student with the tools and information necessary to obtain an internship position upon the completion of the interior design coursework. Individual skills needed in different design positions will be researched and identified. Internship and career goals will be established. A portfolio of assignments and projects will be developed that best match the desired career directions of the student. Prerequisites: IDES1100, IDES1110, IDES1120, IDES1135, IDES1206, IDES1217, IDES1225, IDES1230. Concurrent registration or completion of IDES2106, IDES2110, IDES2136, and IDES2146.

**IDES2106 Color and Light 3 cr**  
The student will continue to study the hue, value and intensity of color. They will investigate the dynamics of color and light in interior space while developing the knowledge of what color is, why it happens, and how it is controlled. Prerequisites: IDES1100, IDES1110, IDES1120, IDES1135, IDES1206, IDES1217.

**IDES2110 Materials, Estimating and Specifications 3 cr**  
This course provides students with information that will allow them to establish a systematic approach for selecting materials in interiors. Students will also create the content of specifications documents for interiors, emphasizing code requirements and testing standards. Environmental issues and concerns in relation to the product materials will be addressed. Textiles and their use in residential and commercial interiors are presented. Students will learn the appropriate estimating techniques to determine accurate material amounts for any given job. The overall appropriateness and manufacturing process combined with the use of materials for walls, floors, and ceilings will be emphasized. Prerequisites: IDES1100, IDES1110, IDES1120, IDES1135, IDES1206, IDES1217.

**IDES2136 Commercial Studio II 4 cr**  
This course covers the interior design of public spaces. The interior design process will be applied, with emphasis on the design development phase (space plan and design details and presentation elevations) as well as contract documentation appropriate to this class (product specifications, installation plans, and schedules, working elevations and reflected ceiling plans). Commercial building support systems will be introduced. Strategic facilities planning will be explored. Prerequisites: IDES1100, IDES1110, IDES1120, IDES1135, IDES1206, IDES1217, IDES1225, IDES1230, and concurrent registration in IDES2110.

**IDES2146 Residential Studio II (Kitchen and Bath) 4 cr**  
This course covers the basics of residential construction and their application with kitchen and bathroom interior spaces. The course uses the guidelines published by National Kitchen and Bath Association (NKBA) and the principles of universal design. Spatial analysis and the selection and product specification of appropriate materials, cabinetry, and appliances will be introduced. The interior design process phase contract documentation appropriate to this class will be emphasized, which will include an installation plan and schedule, an electrical and lighting plan, and working elevations as well as sections and details for custom millwork. Prerequisites: IDES1100, IDES1110, IDES1120, IDES1135, IDES1206, IDES1217, IDES1225, and IDES1230; concurrent registration in IDES2110.

**IDES2200 Professional Business Practices and Sales 3 cr**  
This course will emphasize the business practices specific to the interior design industry, including organizational methods and procedures. Sales and marketing techniques, building a clientele, qualifying clients, determining fees, and proposals will be presented. Establishing a business, understanding a business plan, and identifying those issues pertinent to all successful designers are included. Prerequisites: IDES1100, IDES1110, IDES1120, IDES1135, IDES1206, IDES1217, IDES1225, IDES1230, IDES2106, IDES2110, IDES2136, and IDES2146.

**IDES2210 Senior Studio 5 cr**  
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, IDES1135, IDES1206, IDES1217, IDES1225, IDES1230, IDES1206, IDES2110, IDES2136, and IDES2146.

## LANDSCAPE HORTICULTURE

**LAHT1000 Plant Science 2 cr**  
This course covers the study of biology of higher plants, including morphology, physiology, and taxonomy. Emphasis is placed on knowledge relevant to landscape horticulture. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**LAHT1200 Plant Pests 3 cr**  
This course is an overview of the biology, identification, and control of weeds, insects, and infectious and non-infectious diseases common to landscapes of Minnesota. Prerequisites: None.

**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. Prerequisites: None.

**LAHT1310 Plant Maintenance 2 cr**  
This course covers the maintenance of landscape plants other than turf by proper cultural practices, including pruning, fertilizing, damage repair, and support. Prerequisites: None.

**LAHT1320 Turf Management 3 cr**  
This course is an introduction to establishing and maintaining turf, including turf species identification, seeding, sodding, fertilization, aeration, and other cultural practices. Prerequisites: None.

**LAHT1400 Greenhouse Operations 2 cr**  
This course is an overview of commercial greenhouse functions, including structures, environmental control, media and other materials, and basic growth practices. Prerequisites: None.

**LAHT1410 Nursery Operations 2 cr**  
This course is an overview of basic nursery practices, including grading standards, harvest, planting, storage, and pruning. Emphasis is placed on field production and knowledge applicable outside the nursery. Prerequisites: None.

**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. Prerequisites: None.

**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 ACCUPLACER math entrance exam or passing grade in MATS 0200.

## COURSE DESCRIPTIONS

**LAHT1600 Landscape Design I** 3 cr  
This course is an introduction to design theory and drafting techniques. Basic design elements, site characteristics, and history of landscape design are discussed. Students are taught basic drafting skills and are prepared to create and read simple landscape plans. Prerequisites: None.

**LAHT1800 Supervised Occupational Experience I** 1 cr  
This course provides students practical experience working for a landscape horticulture organization or related employment with instructor guidance. Prerequisites: None.

**LAHT1810 Supervised Occupational Experience II** 1 cr  
This course is a continuation of LAHT 1800. It provides practical experience working for a landscape horticulture organization or related employment with instructor guidance. Prerequisites: None.

**LAHT2000 Herbaceous Plant Materials** 2 cr  
This course is an introduction to annuals, perennials, groundcovers, ornamental grasses, and other herbaceous plants grown in Minnesota. Students identify and name assigned plants as well as supply information about the use and culture of each. Prerequisites: None.

**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. Prerequisites: None.

**LAHT2100 Landscape Construction II** 3 cr  
This course covers the study of design, planning, estimating cost, and construction of such landscape features as decks, retaining walls, patios, and fences. Students will build hardscapes in class. Basic elements of surveying are included. Prerequisites: LAHT1300.

**LAHT2110 Irrigation and Lighting** 2 cr  
This course covers the fundamentals of landscape irrigation and lighting, especially for residential sites. Subjects include materials, design, and installation. Prerequisites: None.

**LAHT2120 Landscape Surveying** 1 cr  
This course deals with the basics of land, topographical and construction surveying as it is used in landscaping. Students use hand and tripod instruments. Required for construction majors; suggested for all students. Prerequisites: None.

**LAHT2130 Site Grading and Drainage for Stormwater Management** 1 cr  
This course is a follow-up to LAHT2120 Landscape Surveying and will cover concepts of grading and drainage as utilized by landscape design and construction professionals on a site-specific scale. Students will learn how to read existing landforms and anticipate potential problems related to storm water run-off. Students will learn how to manipulate landforms for functional, aesthetic and storm water management reasons with a priority set on minimizing disruption to existing on and off site features. An understanding of site topography and hydrology coupled with the ability to thoughtfully manipulate landforms will allow designers and contractors to create landscapes that are functional and aesthetically pleasing while avoiding costly mistakes due to improper site drainage. Prerequisites: LAHT1510 and LAHT2120.

**LAHT2202 Landscape Design II** 4 cr  
This course is an advanced study of design theory and presentation graphics. Includes plan, detail and elevation drawing techniques using various media. In depth discussion and application of design principles, design process and professional practice. Prerequisites: LAHT1600.

**LAHT2210 Design Problems** 3 cr  
This course reinforces design theory concepts through residential, commercial, and public space design problems. Presentation techniques and professional practice are further discussed. Prerequisites: None.

**LAHT2230 Landscape Computer Aided Design I** 2 cr  
This course is an introduction to the use of computers in the design process. This is an elective class suggested for design majors. Prerequisites: Instructor permission.

**LAHT2232 Landscape Computer Aided Design II** 2 cr  
This course is a continuation of LAHT2230 and expands on the use of computers in the design process. This is an elective class suggested for design majors enrolled in LAHT2210. Prerequisites: LAHT2230.

**LAHT2300 Plant Propagation** 2 cr  
This course is an overview of plant propagation and terminology. Students become familiar with industry techniques including seeding, cuttings, and grafting. This course is required for plant production majors. Prerequisites: None.

**LAHT2312 Nursery and Greenhouse Operations I** 2 cr  
This course continues from LAHT1400 and 1410. Nursery topics include container production, nursery pests, and inventory. Greenhouse topics include introduction to bedding plant production and chemistry of growth media. Prerequisites: LAHT1400 and LAHT1410.

**LAHT2320 Nursery and Greenhouse Operations II** 3 cr  
This course is a continuation of LAHT 2310 with an emphasis on bedding plant production. Topics include fertilization, pest control, size control, and other cultural practices. Students will grow a bedding plant crop. Prerequisites: LAHT 2310.

**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. Prerequisites: None.

**LAHT2510 Landscape Estimating** 3 cr  
This course is an overview of the competitive bidding process including job estimating, proposal writing, and project specifications. It includes practice in completing business records common to the landscape horticulture industry. Prerequisites: LAHT 1510 or permission of instructor.

**LAHT2605 Introduction to Sustainable Landscape Practices** 2 cr  
The ability of Earth's ecosystems to sustain life as we know it is coming under increasing pressure from the demands of our consumer oriented society. If future generations are to inherit a healthy planet then we will need to rethink the way we live our lives right down to the way we landscape our back yards, school grounds and city parks. This course will introduce students to the broader concepts and definitions of sustainability - meeting the needs of the present without compromising the ability of future generations to meet their own needs - and illustrate how those concepts can translate to the site specific scale and influence our approach to the design of our local landscapes. While acknowledging the underlying premise of reduce-reuse-recycle this course will introduce students to topics including concepts of Permaculture that can be applied to future landscape projects. This course will consist of classroom lectures and field trips to natural areas and built projects that demonstrate current examples of sustainable landscape practices. Prerequisites: None.

**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. Prerequisites: None.

**LAHT2800 Supervised Occupational Experience IV** 1 cr  
Practical experience working for a landscape horticulture organization or related employment with instructor oversight. Prerequisites: None.

**LAHT2810 Supervised Occupational Experience V** 1 cr  
Practical experience working for a landscape horticulture organization or related employment with instructor oversight. Prerequisites: None.

## MARKETING AND SALES

**MKTC1000 Principles of Marketing** 3 cr  
Introduction to marketing terms, concepts, and skills useful in analyzing marketing problems. Covers legal, behavioral, ethical, competitive, economic, technological and international factors affecting product, pricing, promotion, and marketing channel decisions. Identify factors marketing managers take into account when creating a marketing plan, including buying behavior, market segmentation, product life cycle, packaging, branding, pricing, advertising, sales promotion, public relations, personal selling, and product distribution methods. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**MKTC2010 Advertising Campaign Management** 3 cr  
This course emphasizes overall advertising campaign management. It focuses on strategy development, advertising, and promotional relationship, media strategy, budget management and control, and measuring results. Students study and analyze case histories and current campaigns covered in advertising trade publications. Students study advertising management's role in the marketing process, and sharpen their abilities to think strategically, analyze, conceptualize and make sound decisions. Students prepare and present a full advertising campaign. Prerequisites: MKTC2000.

**MKTC2050 Direct Marketing** 2 cr  
Learn the principles and components of direct marketing. Topics include marketing channels, the concepts of profiling, modeling and segmenting, database management, management in direct marketing, market analysis, privacy regulations, and internet, email and e-commerce marketing. Special concentration will be focused on Customer Relationship Management (CRM), a key competitive strategy, which focuses on the needs of customers. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**MKTC2215 Marketing Promotions** 2 cr  
This course explains the importance of promotions in the marketing. It defines the steps in promotion planning and components of sales promotions, trade promotions, and techniques in consumer promotions along with promotional strategies, motivational and support programs, event sponsorship, premiums, contests and sweepstakes. Prerequisites: None.

**MKTC2300 Public Relations and Promotions** 3 cr  
This course explains the nature and uses of public relations as a promotional tool. Training in the writing and preparation of press releases and press kits, publicity campaigns, conduct of press conferences, and other public relations tools. Course also includes current practices and problems in the field of public relations. Emphasizes successful case histories and planning techniques. Prerequisites: None.

**MKTC2310 Public Relations** 3 cr  
This course explains the nature and use of public relations as a promotional tool. Training in the writing and preparation of press releases and press kits, publicity campaigns, conduct of press conferences, and other public relations tools. Course also includes current practices and problems in the field of public relations. Emphasizes successful case histories and planning techniques. Prerequisites: None.

**MKTC2410 Marketing Visual Communications** 1 cr  
The understanding of print and electronic visual communications is an integral part of marketing communications. In this course, students will be introduced to the fundamentals of the role visual communications plays in the marketing process. The course includes study how to select pictures to use in e-marketing, public relations and print including the importance of a photograph's content. Students will familiar with the role visual communication specialists play in the marketing process. Prerequisites: None.

**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. Prerequisites: None.

**MKTC2550 International Marketing** 3 cr  
This course introduces students to the concepts and disciplines of international marketing. Students develop an understanding of the international environment and its impact on marketing. Topics include social and cultural influences; political, legal and financial considerations; exporting and importing; organizational alternatives; information sources; market-entry strategies; pricing and distribution; sales and communications practices; counter trade; and other current international marketing issues. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

## MATHEMATICS

**MATS0200 Basic Mathematics** 3 cr  
This course is designed to develop and increase the student's ability to perform basic math operations and to solve mathematical problems relevant to technical education. Topics covered include whole numbers, fractions, decimals, ratio and proportion, percents, and problem solving. Signed numbers and simple algebraic equations are introduced near the end of the course. Prerequisites: None.

**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 math entrance exam.

**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 math entrance examination.

**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 MAT0305 or satisfactory score on math entrance exam. This course serves as a prerequisite for MATS1225, MATS1251, MATS1300, and MATS1350.

**MATS1205 Math for Electricians** 3 cr  
A course for students enrolling in the Electrical Construction program. After a brief review of fractions, decimals, percents, and proportions, students will apply significant figures and engineering notation in applying Ohm's law, basic formulas of series and parallel circuits, the theorem of superposition, and Norton's and Thevenin's theorems. Students will further solve simultaneous equations and apply Kirchhoff's laws to series, parallel, and complex circuits. Trigonometry, vectors, and AC wave analysis are also introduced. NOTE TO ELECTRICAL CONSTRUCTION STUDENTS: This course does NOT fulfill the union requirement of a year of high school algebra. Students looking to fulfill this requirement should enroll in MATS0305. Prerequisites: Successful completion of MATS0305 or satisfactory score on math entrance exam.

**MATS1251 Statistics** 4 cr  
Fundamental principles of inferential statistics are presented in lecture and supplemented with computer labs using Minitab software. Specific topics include descriptive and graphical statistics, fundamentals of counting and probability, probability distributions, sampling distributions, confidence intervals, hypothesis testing, linear regression, chi-square tests, ANOVA, and nonparametrics. Prerequisites: Successful completion of MATS0600 or satisfactory score on math entrance exam.

**MATS1300 College Algebra** 4 cr  
This course develops a student's ability to analyze and work with functions and graphs, as part of the preparation for a rigorous calculus sequence (taking this course together with MATS1320 is equivalent to precalculus). Topics include tests for symmetry, finding intercepts and asymptotes, constructing piecewise-defined functions, transformations, polynomial and rational functions, composite and inverse functions, and exponential and logarithmic functions. Techniques for solving linear, quadratic, rational, radical, exponential and logarithmic equations (with applications) are emphasized throughout the course. Systems of linear equations and matrix algebra are introduced, after which sequences and series are also briefly introduced. Prerequisites: Must achieve qualify score on the Elementary Algebra or college level math test or successfully complete MATS0600.

**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.

**MATS1350 Math for Liberal Arts** 4 cr  
A college-level course designed to build a student's appreciation of both the beauty and utility of mathematics as it is used in 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 MATS0600 or qualify scores on elementary algebra or college level math tests.

**MATS1480 Technical Calculus** 2 cr  
This course is designed for students in an engineering technology program who wish to learn how to apply calculus to practical problems. After a brief review of analytic geometry, students are immediately introduced to differentiation and applications of the derivative (such as related rates and optimization problems), followed by integration and applications of integration (such as work problems, hydrostatics, and center of mass problems). Modeling with differential equations, and their solution by computer, is also explored. Prerequisites: Successful completion of MATS1300 or satisfactory score on math entrance exam.

**MATS1500 Beginning Calculus w/Trig.** 4 cr  
This course is designed for students who wish to explore the foundations of calculus in a more mathematically rigorous way than in MATS1480. The course begins with college trigonometry topics, including the six trigonometric functions and their inverses, the law of sines/law of cosines, radian measure and the unit circle, trigonometric identities and solving trigonometric equations. Fundamental concepts of calculus are then developed, including limits and continuity, differentiation of polynomial, trigonometric, exponential, and logarithmic functions with applications, and integration by numerical and exact methods with applications. Mathematical modeling with differential equations is also introduced. Prerequisites: Successful completion of MATS1300 or satisfactory score on math entrance exam.

## MEDICAL ASSISTANT

**MDAS1122 Laboratory Skills I** 5 cr  
This course starts with an introduction to the clinical lab setting, lab safety, glassware, 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 HEAL1150 or MATS0990.

**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. Professional-

ism 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 AC-CUPLACER or successful completion of ENGL0123.

#### **MDAS1140 Phlebotomy 1 cr**

This course will cover the process of collection of patient blood specimens and processing them for testing. Four different methods of collection will be learned and practiced. Students will be expected to participate both as a phlebotomist and as a patient. Difficult draw, adverse reaction and pediatric situations will also be discussed and simulated. The specimens collected will be handled and processed according to laboratory standards for accurate testing. Prerequisites: Concurrently enrolled in Medical Terminology and Anatomy.

#### **MDAS1210 Disease/Medical Treatment, Including Nutrition 3 cr**

This course presents basic information about common disease conditions affecting various body systems. The causes, symptoms, and current diagnostic and treatment procedures will be presented. Basic nutritional concepts and practical applications are also included. Prerequisites: MDAS1101.

#### **MDAS1222 Laboratory Skills II 4 cr**

This course builds on Laboratory Skills I using all the skills learned in that course and adding complete urinalysis, advanced hematology, and ECG theory and performance. A large part of this course will focus on microscopic analysis of urine and blood. The end of the course will simulate the operation of a POL from specimen collection to result reporting of all testing learned in Laboratory Skills I and II. Following this course the student will be prepared to function in a clinic laboratory. Prerequisites: MDAS1122.

#### **MDAS1230 Clinical Procedures II 3 cr**

This course covers the expanded practice of Medical Assisting duties that are the fundamentals required for assisting with medical specialty exams and procedures, specimen collection, rehabilitation and therapeutic modalities. Prerequisites: MDAS1130; Students are expected to take a First Aid and CPR course prior to externship. Students also complete program requirements in Clinical Lab procedures, Anatomy & Physiology, Medical Terminology, Pharmacology, Nutrition and Radiology.

#### **MDAS1250 Fundamentals of Radiographic Imaging 2 cr**

This course is designed to: 1. Prepare students for the MN State Examination for x-ray operators. 2. Give students an overview of radiology technology and importance it plays in the medical field. 3. Provide students with the necessary information to understand the following: Medical terminology as related to the specialty of radiology, the design and proper use of x-ray equipment, the principles of radiation safety with protection to both the operator and the patient, and the importance of good, safe working habits. 4. Acquaint the students with the common radiographic procedures. Prerequisites: None.

#### **MDAS1260 Medical Assistant Certification Review 1 cr**

This course is design to help the student prepare for the National Certification test in order to use the CMA credential. Prerequisites: Completion of the Medical Assistant program.

#### **MDAS1270 Administrative Procedures 3 cr**

This course is an overview of administrative duties that are performed by a medical assistant. Emphasis will be on clerical functions, bookkeeping procedures, insurance claims, professional communications, legal concepts, patient instruction, operational functions, written and electronic medical records. Other topics included in this course will be office and human resource manager responsibilities. Prerequisites: OFFC1130 and HEAL1502.

#### **MDAS1700 Pharmacology for Medical Assistants 3 cr**

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. Prerequisites: HEAL1150, MDAS1130. Course is taken concurrently with MDAS1230.

## **NANOTECHNOLOGY**

#### **NANO1001 Nanotechnology Concepts 3 cr**

This course provides an introduction to the emerging field of nanoscience and will begin with the basics of scale and focus on the micro and nanometer range. Nanotechnology is a result of the capability to observe and manipulate systems at the molecular or atomic scale. This course will discuss the implications of this technology as it applies to the traditional sciences as well as various commercial markets such as materials, electronics and biotechnology. The course will also address the challenges facing businesses who desire to integrate nanotechnology into existing products and for entrepreneurs who desire to benefit from this technology. Societal impacts will be discussed and evaluated. Prerequisites: None.

#### **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 today's electronic devices. Finally, the concepts of fluid mechanics, optics, photonics and lasers are discussed with an emphasis on new devices and applications based on nanoscale properties. Students taking this course should either have taken chemistry and the second semester of physics or be enrolled in these courses concurrent with the 1200 course. Prerequisites: NANO1100 and take concurrently with PHYS1020, CHEM1500 and MATS1250.

#### **NANO1210 Computer Simulation 1 cr**

This course will cover the application of computer simulation (modeling) to nanoscale systems. In addition, this course provides a visualization of concepts and interactions covered in NANO1100 and NANO1200. The course will cover applied statistics, design of experiments and impact of input parameter variations for biological and mechanical systems. Prerequisites: NANO1100, COML1400.

#### **NANO2101 Nanoelectronics 3 cr**

This course will increase the depth of topics and discussion of those covered in NANO1200. Quantum physics will be reintroduced at a greater depth with coverage of band structure, conduction, diffusion, thin film response and optical properties from a modern physics perspective. Students will study, measure, evaluate and create fabricated structures such as nanowires, cantilevers and nano channels. Application of nanoscale principles will be used to discuss imprint lithography, etching, component block assembly of nanotransistors, quantum computing, magnetic and electron spin memory and holographic memory devices. Prerequisites: A grade of C or better in the following courses; NANO1100, NANO1200, and NANO1210. Concurrent registration in NANO2111, NANO2121, NANO21312, NANO2150 and NANO2970.

**NANO2111 Nanobiotechnology/Agriculture 3 cr**  
This course will increase the depth of topics and discussion of those covered in NANO1100. Students will investigate the potential of nanoscience in multiple biological applications including nanopore, nanoparticle and nanochannel structures, diagnostics and treatment. Emphasis will be placed on interactions between biological and non-biological systems and understanding biochemistry. Prerequisites: A grade of C or better in the following courses; NANO1100, NANO1200, and NANO1210. Concurrent registration in NANO2101, NANO2121, NANO2131, NANO2150 and NANO2970.

**NANO2121 Nanomaterials 3 cr**  
This course will increase the depth of covered topics and discussion of those covered in NANO1100 and NANO1200 courses. Subjects covered include single walled and multiwalled carbon nanotubes (fabrication, property measurement and compound formulation), creation of nanomaterials, particles and crystals by various processes including 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, NANO2150 and NANO2970.

**NANO2131 Manufacturing Quality Assurance 2 cr**  
This course will cover multiple manufacturing methodologies (chemical solutions, electro filament, molding, coating, rolling etc. first in the traditional sense and second as these techniques apply to the nanoscale. Quality Assurance (Six Sigma) practices will be discussed with an emphasis on QA and reliability at the nanoscale. Design of experiments, measurements, approaches, data tracking, process improvement and statistical analysis and reporting will be discussed. Prerequisites: A grade of C or better in the following courses; NANO1100, NANO1200, and NANO1210. Concurrent registration in NANO2101, NANO2111, NANO2121, NANO2150 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, NANO2150 and NANO2970.

**NANO2151 Career Planning and Industry Tours 1 cr**  
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 3 cr**  
This course covers basic formatting for business documents, including letters, memos, reports, and tables. Straight-copy skill development for speed and accuracy will also be included. Prerequisites: A typing speed of 35 words per minute with five or fewer errors. \*\*Articulated\*\*

**OFFC1007 Keyboarding for Advancement 2 cr**  
The Skill Building Lab course is designed to allow students to upgrade keyboarding skills they already possess by working on additional warmup, 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.

**OFFC1010 Business English Skills 2 cr**  
This course is an extensive, comprehensive study of English grammar, spelling, word usage, punctuation, number usage, capitalization and abbreviation rules, and proofreading. Prerequisites: None.

**OFFC1017 Technology for the Business Professional 3 cr**  
This course is designed to advance the training of business and office students in the use of desktop publishing documents, real-world business projects, web site analysis, and web browser. Students will also learn the basics of creating, formatting and managing a Web site along with scheduling/organizational software. Prerequisites: COML1400 and OFFC1005.

**OFFC1019 Receptionist Skills 2 cr**  
This course incorporates the skills that are needed to be an effective receptionist. Topics such as: scheduling techniques using various software, typing skills, interpersonal communications, customer service. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**OFFC1024 Meeting Planning for the Administrative Profession 2 cr**  
Administrative professionals plan the majority of meetings under 100 people without formal meeting planning education or experience. This course provides fundamental knowledge and techniques to ensure success of planning small meetings. Prerequisites: None.

**OFFC1030 Word Processing 3 cr**  
This course covers hands-on training for intermediate and advanced concepts of word processing using Microsoft Word 2003. Prerequisites: OFFC1000 or OFFC1005 or concurrent enrollment. \*\*Articulated\*\*

**OFFC1040 Integrated Office Skills 3 cr**  
This course is designed to integrate and reinforce the skills and knowledge learned in previous courses in the program. Project emphasis will develop the students' awareness of work flow, chain of command, and interpersonal relationships in the office. The use of electronic tools and the integration of documents created in various Microsoft Office Suite programs is the primary focus of this course. Prerequisites: OFFC1020 and COML1400.

**OFFC1045 Medical Terminology 2 cr**  
This course is an introduction to building medical terms and learning the meanings. Students will learn combining forms, word roots, prefixes and suffixes, and how these word parts apply to building medical terms. Students will also learn common medical abbreviations and symbols. THIS COURSE IS THE SAME AS HEAL1502 Prerequisites: None. \*\*Articulated\*\*

**OFFC1052 Medical Transcription I 2 cr**  
This course covers how to properly transcribe dictated medical material into a variety of usable medical documents by using word processing skills. Emphasis will be on authentic forms, using S.O.A.P. format, understanding medical language narrative, building speed and accuracy, proofreading and editing of material. An introduction to various laboratory tests and diagnostic procedures will also be covered in the course. Prerequisites: OFFC1005, OFFC1045, COML1400.

**OFFC1053 Medical Transcription II****2 cr**

This advanced course covers producing a variety of medical documents by using medical terminology knowledge, word processing and transcription skills. Emphasis is placed on producing authentic forms, building speed and accuracy, proofreading and editing skills, and understanding and building on additional medical terms used in specialty areas. Prerequisites: OFFC1005, OFFC1045, COML1400, OFFC1052.

**OFFC1054 Speech Recognition Transcription****2 cr**

This course is a continuation of medical transcription using speech recognition software. Emphasis will be on editing medical documents that are 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. Prerequisites: None.

**OFFC1060 Medical Receptionist Skills****1 cr**

This course provides hands-on medical receptionist experience in a simulated office environment. Topics include correspondence, medical reports, and insurance and billing. Prerequisites: OFFC1000 or OFFC1005.

**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.

**OFFC1157 MS Works****3 cr**

This course covers the basic software application of Microsoft Works for Windows using IBM networked computers. The student will develop a comprehensive understanding of how an integrated software package can work separately or together. No previous knowledge or experience of personal computers is needed. This course will not replace COML1400. Prerequisites: OFFC1000 or equivalent.

**OFFC1160 Basic Internet****2 cr**

This online-enhanced course covers the basics of using the Internet to find and store information. Topics covered include using a browser, using search engines, file management, using e-mail, creating advanced searches and using the Internet to explore the online information available for the topics of science, math, writing, journalism, history, business e-commerce, economy, government and using the internet to locate jobs. Prerequisites: Basic computer skills, including working in the Windows environment and file management (saving, retrieving or copying data files).

**OFFC1165 WordPerfect I****2 cr**

This course covers the basics of WordPerfect for Windows software using IBM-networked computers. The student will learn to create, edit, save, delete, and print text. The spell checker, thesaurus, and grammar checker will be introduced. Prerequisites: OFFC1000 or equivalent.

**OFFC1170 WordPerfect II****2 cr**

This course covers the advanced features of WordPerfect for Windows software on networked computers. The student will learn to use advanced formatting, desktop publishing, and merge techniques. Prerequisites: OFFC1165 or equivalent.

**OFFC1175 Lotus I****2 cr**

This course covers an introduction to Lotus 1-2-3 for Windows spreadsheet software used to analyze financial data. Topics include spreadsheet creation/maintenance/formatting, record retrieval, charts, and printing. Prerequisites: Basic knowledge of personal computers and Windows is helpful.

**OFFC1180 Lotus II****2 cr**

This course covers continued development of the use of Lotus 1-2-3 for Windows spreadsheet software used to analyze financial data. Topics include advanced data management skills, advanced chart manipulation to analyze data graphically, advanced statistical functions, and macros. Prerequisites: OFFC1175 or equivalent.

**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. Prerequisites: None.

**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.

**OFFC1210 Adobe PageMaker for the PC 3 cr**  
This course introduces the student to Adobe PageMaker, a popular desktop publishing software. Manipulation of text will be presented as well as page construction, importing of text, and graphics using the PC. Prerequisites: Basic computer skills.

**OFFC1215 Quicken Basics 2 cr**  
This course covers the basics of using Quicken to manage your personal finances. It covers basic concepts, providing the opportunity for you to improve your financial abilities and increase your knowledge of how the electronic financial system works. Prerequisites: None.

**OFFC1220 Basic Web Page for Personal Use 2 cr**  
This course will introduce the first time user to the very basic creation of a Personal Web Page for the Internet. Student will create simple Web Pages using HTML Assistant Pro tool. This course is designed for an introduction to HTML and is not applicable for Computer Careers or Graphic Design Programs. Prerequisites: OFFC1160.

**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. Prerequisites: None.

**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.

**OFFC1235 MS PhotoDraw 2 cr**  
This course covers the basics of Microsoft PhotoDraw for Windows software using IBM networked computers. The student will learn to create graphic images for use in business cards, letterheads, flyers or other printed documents, to touch up and modify photographs, and to create a simple web page. Prerequisites: OFFC1000 and COMC1900 or equivalents.

**OFFC1240 QuickBooks I 2 cr**  
This online-enhanced course covers the basics of using Intuit's QuickBooks Pro software on a Personal Computer (PC) to manage a company's financial data. Topics include how to set up customers and vendors, how to enter checkbook, sales and invoice transactions, how to receive payments and make deposits, how to enter and pay bills, how to run and manage lists and reports and how to set up a new company in QuickBooks. Prerequisites: Basic computer skills, including working in the Windows environment, and file management (saving, retrieving or copying data files). Knowledge of basic accounting terms and processes is recommended, but not required.

**OFFC1245 QuickBooks II 2 cr**  
This online-enhanced course covers advanced methods of using Intuit's QuickBooks Pro software on a Personal Computer (PC) to manage a company's financial data. Topics include setting up and maintaining inventory, managing sales tax, setting up and processing payroll, making adjustments, completing year-end procedures, and using QuickBooks for budgeting, forecasting and business planning. Prerequisites: Basic computer skills, including working in the Windows environment and file management (saving, retrieving or copying data files) and completion of OFFC1240, QuickBooks I or equivalent experience. Knowledge of basic accounting terms and processes is recommended, but not required.

**OFFC1250 Introduction to Microsoft Windows XP 2 cr**  
This course covers basic Windows skills needed to operate an IBM or IBM-compatible Personal Computer (PC). Topics included are basic Windows navigation, running multiple programs, managing files and folders, customizing windows, backing up data files, working with printers and using Windows maintenance utilities. Prerequisites: Basic computer skills, including working in the Windows environment and file management (saving, retrieving or copy-

ing data files). COML1400, Introduction to Computers recommended but not required. Typing speed of 25 wpm recommended.

**OFFC1255 MS Project 2 cr**  
This course covers the use of MS Project software. The student will learn how to plan and create a project, create tasks, schedule assign resources, update status and use Project tools for communicating and sharing information across applications and the Web. The goals of this course track to the standards for the Microsoft Office User Specialist exam for Microsoft Project. Prerequisites: Basic computer skills (using windows and managing files) REQUIRED; COML1400 recommended. Keyboarding/typing: Typing speed of 25 wpm recommended.

**OFFC1260 Certification Basics - Word 3 cr**  
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 3 cr**  
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 3 cr**  
This course covers training in the preparation for students to take the Microsoft Office Specialist Exam for PowerPoint Prerequisites: OFFC1145, MS PowerPoint or equivalent.

**OFFC1280 Certification Basics - Outlook 3 cr**  
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**  
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. Prerequisites: None. \*\*Articulated\*\*

**OFFC1290 Written Business Communication 2 cr**  
This course covers the process of communication, including writing techniques and strategies. Students learn by completing a range of writing exercises and critical thinking cases. Specific applications focus on letter and memorandum writing and formal and informal reports. Communication skills are emphasized along with e-mail usage. Prerequisites: OFFC1010, Business English Skills or concurrent enrollment.

**OFFC1340 QuickBooks PRO Basics 2 cr**  
This online course introduces the basics of using Intuit's QuickBooks Pro PC software for business transactions and basic accounting purposes. Topics covered will include navigating QuickBooks, company setup, entering sales transactions, receiving payments, paying bills, managing bank accounts, managing inventory and running standard QuickBooks reports. Prerequisites: Basic computer skills.

## PHILOSOPHY

**PHIL1100 Ethics 3 cr**  
This course is an introduction to the study of ethics. Students will be involved in discussions about the nature of values and exploring solutions to contemporary and historical moral problems across various cultures. Prerequisites: ACCUPLACER reading score over 50%.

**PHIL1200 Critical Thinking 3 cr**  
This course is an introduction to logic. Students will develop skills in critical thinking and will practice applying these skills to problems found in the work-

place 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: None.

**PHIL1300 Introduction to Philosophy 3 cr**

This course is an introduction to the traditional problems of philosophy. Students will discuss and criticize tests written by philosophers from a variety of periods and cultures. Emphasis will be placed on the practical value of the ideas explored. Prerequisites: None.

**PHIL1350 Medical Ethics 3 cr**

This course introduces students to basic issues in medical ethics. Emphasis will be placed on the process of considering ethical theory, ethical principles, laws, and professional codes of conduct in the analysis of specific cases from the field. This course will be of special interest to students in nursing and dental programs, though students in any program will find the study of medical ethics worthwhile. Prerequisites: None.

**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. Prerequisites: None.

## PHYSICS

**PHYS1100 College Physics I 4 cr**

This course is the first of two courses that cover non-calculus physics topics. These topics include: mechanics, concepts of energy and momentum, basic laws of motion, structure of matter, gas laws, heat and thermodynamics, waves and sound. Prerequisites: None.

**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. Prerequisites: None.

## POLITICAL SCIENCE

**POLS1000 Introduction to Political Science 3 cr**

Introduction to Political Science will present a broad introduction to the basic concepts, approaches, and areas of study of political science. Discussion and active debate of key political ideologies; liberalism, conservatism, socialism, communism, fascism, nationalism, feminism, and environmentalism will be central to the course. The class will also delve into the specific political systems and institutions of key members of the international community as well as consider contemporary American political issues. Prerequisites: None.

## PRACTICAL NURSING

**PNSG1000 Foundations of Nursing Practice I 2 cr**

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.

**PNSG1050 Clinical Refresher I 1 cr**

This course prepares the returning student to begin clinical courses in the nursing major. The student will have the opportunity to practice nursing skills, and will be required to demonstrate competence in theory and skills. Prerequisites: PNSG1000.

**PNSG1100 Foundations of Nursing Practice II 2 cr**

Students are expected to demonstrate progression in nursing knowledge and skill development. Procedures are practiced in the laboratory setting. Documentation procedures will be discussed and practiced. Prerequisites: HEAL1101, HEAL1150, PNSG1000, PSYC1100, PSYC1300, PSYC1400, and HEAL1400.

**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: ACCUPLACER Arithmetic Skills score of 56% or MATS0200, PNSG1000, and HEAL1150.

**PNSG1400 Adult Health Nursing I 4 cr**

This course addresses diseases of the endocrine, respiratory, cardiovascular, and musculoskeletal systems. It includes pathology, medical treatment, nursing implications, nutritional aspects, and pharmacodynamics. The management of surgical clients, clients with pain, and care of the terminally ill is also discussed. Prerequisites: PNSG1000, HEAL1400 and concurrent enrollment or prior successful completion of PNSG1100, and PNSG1350; ACCUPLACER: Reading Comprehension score 50% or successful completion of ENGL0123, Medical Reading and Study Skills.

**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 cr**

This course introduces students to beginning nursing practice. Students will provide basic nursing care for selected clients in clinical settings with instructor supervision. Students will collect data, perform basic nursing skills, and administer delegated medical treatments. Prerequisites: HEAL1101, PNSG1000, PNSG1100, PNSG1400, PSYC1100, HEAL1400, PSYC1300, and 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 cr**

This course provides opportunities for students to perform nursing skills for selected acutely ill clients in clinical settings with minimal instructor guidance. Students will continue to implement the LPN role in the nursing process, and perform nursing care and treatments as learned in prior theory and laboratory courses. Independent functioning is encouraged along with medication administration proficiency. Prerequisites: HEAL1400, PNSG1100, PNSG1400, PNSG1500, 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: 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.

**PNSG1700 Mental Health/ Transcultural Nursing 2 cr**  
This course explores mental health and mental illness. Maladaptive disorders, treatment, and nursing care are discussed. Transcultural nursing issues will be addressed. Prerequisites: HEAL1100, HEAL1150, HEAL1500, PNSG1000, and PSYC1100.

**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.

**PNSG1800 Family and Community Nursing 3 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. An overview of health care in the community is included. Health promotion and disease prevention are emphasized. 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. Prerequisites: None.

**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)

**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. Prerequisites: None.

**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. Prerequisites: None.

**PSYC1400 Adult and Geriatric Psychology 2 cr**  
This Adult psychology course is an introduction to adult and geriatric psychology from a lifespan perspective. This course examines topics from a developmental perspective, including sensation and perception, memory, intelligence and social cognition through adulthood. Prerequisites: None.

**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. Prerequisites: None.

## 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. Prerequisites: None.

**RRCC1120 Introduction to Conductor Service 4 cr**  
This is an introductory course for the conductor service option within the railroad operations program. Upon successful completion of this course, the student should be able to describe railroad organization and general operations, policies and practices to ensure railroad safety, and the basic responsibilities of conductors. 5 hrs. lecture, demonstration/wk. Selective admission program - see a counselor about special requirements. Prerequisites: Admission to the DCTC railroad conductor program and completion of the one-week orientation. (RRCC1110).

**RRCC1130 General Code of Operating Rules 4 cr**  
This is the fourth course in the conductor option for the railroad operations degree program. Conductors must maintain a thorough understanding of the General Code of Operating Rules (GCOR). This course provides an in-depth study of the GCOR. Upon completion of this course, the student should be able to demonstrate abilities to apply the General Code of Operating Rules to safe and efficient train movement and operations. 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 Conductor Service with a minimum grade of "C".

**RRCC1140 Mechanical Operations 2 cr**  
This course covers mechanical operations that relate to conductor service. This is the second course in the conductor option of the railroad operations degree program. Upon successful completion of this course, the student should be able to describe the importance and application of freight care mechanical policies and practices to ensure safe railroad operations. 2.5 hrs. lecture/wk. Selective admission program - see a counselor about special requirements. Prerequisites: Admission to the DCTC's railroad conductor program and successful completion of RRCC1120 with a grade of "C" or better.

**RRCC1150 Conductor Duties 2 cr**  
Upon successful completion of this course, the student should be able to describe and apply railroad organization and general operations, policies and practices to ensure railroad safety, and basic responsibilities of conductor. This course includes safety and the general rules with which conductors must comply and teaches the techniques and administrative procedures conductors use on the job to perform safely and effectively. 2.5 hrs. lecture/wk. Selective admission program - see a counselor about special requirements. Prerequisites: Admission to the DCTC railroad conductor option and successful completion of RRCC1140 Mechanical Operation with a minimum grade of "C".

**RRCC1160 Utilization of Railroad Equipment and Safety Stand 2 cr**  
This course is designed for persons interested in pursuing a career as a Railroad Conductor. The student will study and demonstrate the accepted standards of railroad equipment utilization. They will also demonstrate knowledge and application of railroad safety rules and techniques for moving box cars. Prerequisites: Current enrollment in Railroad Conductor Certificate.

## REAL ESTATE PROPERTY MANAGEMENT

**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. Prerequisites: None.

**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. Prerequisites: None.

- PMGT1204 Real Estate 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. Prerequisites: None.
- 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. Prerequisites: None.
- 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. Prerequisites: None.
- PMGT1208 Introduction to Appraisal** 1 cr  
This course is an introduction to the appraisal profession. The student will learn about the opportunities, licensing requirements, and basic procedures used in the appraisal process. Also discussed will be the principles of real estate ownership and transferring of ownership interests. Prerequisites: None.
- PMGT1210 Appraisal Process** 1 cr  
This course covers the process the appraiser must go through to comply with the requirements of the assignment. The student will learn that the process used is just as important as the results obtained by the appraisal. The student will also learn how to determine if comparable sales were "arms length transactions." Prerequisites: None.
- PMGT1211 Appraisal, Rules and Standards of Practice** 1 cr  
This course covers the Uniform Standards of Professional Appraisal Practice (USPAP) as promulgated by the Appraisal Foundation. Also covered are the basic mathematical formulas required for the appraisal process. This course is included in the 90 hours of pre-licensing education required to take the state-sponsored licensing exam. This course is also approved for 15 hours of continuing education for both real estate or appraisal. Prerequisites: None.
- 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. Prerequisites: None.
- 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. Prerequisites: None.
- 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. Prerequisites: None.
- 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. Prerequisites: None.
- PMGT1218 Maintenance Management and Insurance** 1 cr  
This course covers the reasons for properly maintaining property and techniques for doing so. The roles of property managers, resident managers, maintenance staff, and outside service companies are discussed. Also discussed are

preventive maintenance, inspections, life cycle costing methods, operating reports, risk management, and staffing. Prerequisites: None.

- PMGT1220 Leases** 1 cr  
This course covers rental contracts, beginning with the legal definitions of the various forms of leasehold estates and the rights the landlord and tenant have in each. The student will learn what steps to take to determine the qualifications of a prospective tenant and how to negotiate and create an acceptable residential lease contract. Prerequisites: None.

- PMGT1224 Income Capitalization Analysis** 1 cr  
This course compares the various methods of estimating the market value of income-producing properties. It includes the pros and cons of gross rent multipliers, cap rates, cash on cash returns on investment, and analysis of the impact financing may have on the value of a property to a particular investor. Prerequisites: None.

- PMGT1226 Construction and Blue Print Reading** 1 cr  
This course covers building construction basics from blue print reading to types of construction. Emphasis will also be placed on the process of requesting construction bids and developing an understanding of the principles of building codes. Prerequisites: None.

- PMGT1228 Community Association Management** 1 cr  
This course covers one of the fastest-growing areas of real estate and property management, community association management. Recent statistics indicate that 50% of new residential properties being constructed are in some way a part of an owner's association. This course is a real hands-on, practical course on what you need as a homeowner involved in an association, or a real estate salesperson involved in buying or selling townhomes or condominiums, or a property management professional. Prerequisites: None.

- 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. Prerequisites: None.

- 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. Prerequisites: None.

- 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. Prerequisites: None.

- PMGT1303 Introduction to Entrepreneurship** 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. Prerequisites: None.

- 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. Prerequisites: None.

- 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. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**SOCY1250 Juvenile Delinquency****2 cr**

A sociological examination of juvenile delinquency and society's response to delinquent youth. The juvenile justice system and the rights and responsibilities of children under law. Major topics include the historical foundations of delinquency, emphasis on micro and macro level of struggle in which delinquent behavior takes place, critique of current sociological theories on delinquency, sociological and social psychological causes of delinquency, juvenile justice response to delinquency, and citizen responsibility. Prerequisites: None.

**SOCY1300 Introduction to Anthropology****3 cr**

Anthropology is the scientific and humanistic study of humankind in all its varieties and of human nature in its universal sense. This course introduces students to the four subfields of anthropology: archaeology, cultural anthropology, languages and culture, and physical anthropology. Students will learn to identify and apply anthropological methods of study through a sociological and anthropological approach to humanity. Prerequisites: None.

**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. Prerequisites: None. (This course is for the true beginner, but 1 or 2 years of any high school language is helpful).

**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).

**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. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**SUPERVISORY MANAGEMENT****SMGT1000 Principles of Supervision****3 cr**

Ease the transition to supervisor or bring yourself up to date with today's supervisory/management practices. Study the role and responsibilities of supervisors including planning, organization, staffing, directing and controlling. Develop new skills in communication, correcting or rewarding performance and overall management of resources. Prerequisites: None.

**SMGT1010 Interpersonal Skills** 1 cr  
Practice a variety of effective interpersonal communication techniques including active listening, giving and receiving effective feedback, assertive communication, handling emotional behavior, and interpretation of nonverbal cues. Identify barriers to positive interpersonal work relationships and strategies for developing and maintaining healthy work relationships. Prerequisites: None.

**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 an increasingly diverse workforce. Prerequisites: None.

**SMGT1023 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. Prerequisites: None.

**SMGT1028 Management Effectiveness** 3 cr  
Learn practical tools to manage time and stress. Develop habits to increase personal productivity and create an individual time management plan. Set priorities, delegate and reduce time wastes and stressors. Explore strategies to improve time utilization in workgroups. Prerequisites: None.

**SMGT1030 Ethics in the Workplace** 1 cr  
Explore the influence of ethics on individuals and organizations. Consider frequently-encountered workplace ethical dilemmas. Examine the role of values in leadership and decision making and the influence of supervisors in shaping workforce behavior. Develop a code of ethics for supervisors. Prerequisites: None.

**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. Prerequisites: None.

**SMGT1050 Resolving Conflict** 1 cr  
Learn to resolve conflict and negotiate collaborative solutions in workplace settings. Master conflict resolution and negotiation strategies essential for supervisors and others in leadership positions. Select and apply conflict resolution and negotiation strategies that are appropriate for a given situation. Learn to effectively confront conflict in its early stages and to negotiate solutions beneficial to all persons involved. Prerequisites: None.

**SMGT1060 Habits for Personal Effectiveness** 1 cr  
Discover how to close the gap between what is most important to you and how you spend your time. Increase your interpersonal effectiveness and your ability to foster cooperation. Develop a personal creed and mission statement as a tool for achieving life balance. Prerequisites: None.

**SMGT1070 Time Management** 1 cr  
Learn practical tools to gain control of your time and your life. Apply a comprehensive time management system based on identifying values, long-term goals, short-term goals, and daily action steps. Set priorities, delegate, and reduce time wasters and clutter. Assess personal improvement opportunities and develop an individual time management plan. Explore strategies to improve time utilization of work group members. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**SMGT1082 Distribution, Operations & Logistics** 3 cr  
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. Prerequisites: None.

**SMGT1160 Fundamentals of Meeting, Conference and Event Management** 2 cr  
Learn strategies to develop meaningful, well-organized conferences, meeting and special events, perfect for meeting planners experienced with logistics who want to develop the principles and techniques that form the foundation of meeting and event programs. Individuals interested in a meeting planning career or just starting in the field will want to build their career on the fundamentals included in this curriculum. Prerequisites: None.

**SMGT1161 Advanced Meeting, Conference and Event Management** 3 cr  
Whether you are interested in the field of meeting planning or already an experienced meeting planner, this is the hands-on, dynamic course you have been looking for to hone your skills and learn new techniques. This course delivers tricks of the trade and new twists while refreshing time-tested practices. Students will learn how to apply the Convention Industry Council meeting profile and request for proposal accepted practices. Prerequisites: SMGT1160 or advisor approval.

**SMGT1162 Special Event Coordination and Management** 3 cr  
Learn strategies to effectively procure, organize, implement and monitor the products and services that bring an event to life. This course focuses on event design basics, room set-up, event flow, entertainment, food and beverage options, and communication. Students will research and shop for a case study special event venue and design a boardroom presentation to present venue and theme recommendations to a boss or client; learn vendor selection techniques, and event specifications will be created and vendor/venue work orders reviewed. Get acquainted with music licensing, host liquor liability, the Americans with Disabilities Act (ADA), and preparation for a pre-convention briefing. Students will explore planner resources such as convention and visitor bureaus and destination management companies. Prerequisites: SMGT1161 or advisor approval.

**SMGT1163 Event Promotion** 3 cr  
Promote your meetings, events, festivals, tradeshow 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. Prerequisites: MKTC1000 or instructor approval.

**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 food-services, 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. Prerequisites: None.

**SMGT1166 Event Design** 3 cr  
Meeting and event planners who want to increase production value of their events will find this course essential to achieving well-designed and orchestrated events. This course provides a thorough knowledge of event design principles, processes and practices. Students will learn about the various decorative elements used in special events and how production factors integrate to produce a winning event. Students will learn the basis of good design through study of design principles and practices. Through case studies students will learn techniques and resources to apply event design. Prerequisites: None.

**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. Prerequisites: None.

**SMGT1169 International Meeting Management 3 cr**  
Globalization is changing how we do business, and its impact on meeting and event management is here to stay. Novice and experienced meeting planners who desire to work in the global arena will find the practical sourcing and planning knowledge found in this course to be the bridge to international business they have been looking for. International protocols are essential elements of the curriculum. This course focuses on the international elements of meeting planning and skills required to segue U.S. trained meeting planners to the international market including selection of international venue, sourcing service and liaison support, international venue contracts, shipping, exhibitions, insurance considerations, food service and communication. Prerequisites: None.

**SMGT1170 Meeting Planning for the Administrative Profession 2 cr**  
Administrative professionals plan the majority of meetings under 100 people without formal meeting planning education or experience. This course provides fundamental knowledge and techniques to ensure success of planning small meetings.

**SMGT1205 Total Quality Management 4 cr**  
Learn how to integrate TQM into planning and project management, strategic management, process improvement, and how to modify an organizations behavior. Assess supervisor's roles and responsibilities related to quality including identifying and meeting customer's needs, applying tools and techniques for improving systems and processes, developing a quality training plan for work group members and enhancing work group commitment to continuous quality improvement. Prerequisites: None.

**SMGT1210 Problem Solving 2 cr**  
Learn a systematic approach to solving work place problems. Become proficient at using tools for gathering, analyzing, and evaluating data. Master techniques for accessing creativity and group participation. Learn strategies for gaining approval and support and for facilitating successful implementation. Prerequisites: None.

**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. Prerequisites: None.

**SMGT1232 Problem Solving and Decision Making 3 cr**  
Tapping into your creative energy can make you more effective in solving problems and developing innovative solutions. Learn a systematic approach to solving work place problems. Become proficient at using tools for gathering, analyzing and evaluating data. Master techniques for accessing creativity and group participation. Learn strategies for gaining approval and support for facilitating successful implementation of decisions. Prerequisites: None.

**SMGT1242 Effective Business Communication 3 cr**  
Learn and practice skills to communicate your message directly and effectively to generate the desired results, whether in a meeting, presentation or written media. Integrate multi-media to support your ideas. Assess your audience prior to communicating to maximize effectiveness. Facilitate group participation including handling disruptive behavior. Learn and apply skills in any situation to achieve win-win negotiations. Prerequisites: None.

**SMGT1250 Managing Customer Service 1 cr**  
Identify how supervisors can plan for and support excellent customer service through developing a service strategy. Examine the impact of employee training and decision making authority on customer service. Analyze models of service for internal and external customers. Learn tools and techniques for gathering feedback and handling complaints. Consider the relationship between customer service and quality. Prerequisites: None.

**SMGT1260 Managing Teams 3 cr**  
Develop the skills and knowledge to cultivate productive work teams. Learn to defuse resistance to change and foster support and involvement in developing a shared vision. Master conflict resolution and negotiation strategies essential for supervisors and others in leadership positions in fostering self managed work teams. Prerequisites: None.

**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. Prerequisites: None.

**SMGT1410 Coaching 1 cr**  
Coach work group members toward improved performance. Identify guidelines and steps for coaching. Practice giving feedback. Develop individual improvement plans. Prerequisites: None.

**SMGT1420 Managing a Diverse Workforce 1 cr**  
Consider issues related to culture, race, sex, age, and ability. Assess personal assumptions, biases, and stereotypes. Discuss legal issues associated with hiring, promotion, and preventing and acting on harassment. Develop action steps supervisors can take to avoid stereotyping, to improve cross-diversity communication and understanding, and to eliminate barriers affecting equal access, professional growth, and mobility. Prerequisites: None.

**SMGT1430 Employment Law 1 cr**  
Examine workplace legal issues - equal opportunity, harassment, worker's compensation, wage and hour issues, the hiring process, employment contracts, family and medical leave, reasonable accommodation for disabled workers, and more. Address major employment statutes and their implications for work groups and develop guidelines for supervisors. Prerequisites: None.

**SMGT1440 Employee Selection 1 cr**  
Develop the skills to conduct effective interviews for selecting new employees. Legal issues, fairness, planning, and conducting the interview will be examined. Practical application of techniques will be featured through role play. Prerequisites: None.

**SMGT1441 Introduction to Human Resource Management 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. Prerequisites: None.

**SMGT1463 Managing a 24/7 Workforce 1 cr**  
Effectively managing employees on the night, or rotating shifts is critical in a 24/7 global business market. Since about 26% of the working population in the United States works some kind of shift schedule, it becomes necessary for employers to adjust their "day orientation" policies to accommodate the particular needs of their employees who are working around the clock. Learn to balance business needs with quality of life issues for shift-workers. Prerequisites: None.

**SMGT1470 Safety and Compliance Management** 2 cr  
Learn the programs and regulations set forth by OSHA, MPCA, and DOT for maintaining worker safety and rules compliance in business and industry today. Supervisor's responsibility in safety training, industrial hygiene, motivation, and enforcement of policies will be addressed. Other areas of study will include worker's compensation cost control, accident investigation techniques, and policy and program development. Prerequisites: None.

**SMGT1480 Career Development** 1 cr  
Think through and develop your life-career plan. Assess your values, interests, and capabilities. Learn tools helpful in the job search process to assist with networking, resume writing, interviewing, and securing a job. Study factors influencing advancement such as job performance, personal qualities, organizational needs, and mentors. Consider the supervisor's role in influencing career paths of employees. Prerequisites: None.

**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. Prerequisites: None.

**SMGT1605 Graduation Project** 0  
Complete an improvement project applying the knowledge and skills you have learned in the Supervisory Management Program. Advisor approval is required for the project and credits. Credits are variable (1-6 credits) based on scope of project. Up to five technical electives required in the program may be applied to the Graduation Project. Prerequisites: Register in last semester of program.

**SMGT1660 Introduction to Hospitality and Tourism** 2 cr  
This course introduces students to the largest industry in the world – tourism and hospitality. Learn about management and operations of tourism and travel organizations such as visitor and convention bureaus, travel agencies, hotels/motels/resorts, airlines, cruise lines, tour operators, car rental companies, casinos, amusement parks and more. Prerequisites: None.

**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. Prerequisites: None.

**SMGT1670 Lodging Systems and Technology** 2 cr  
Technology is integral to success in today's lodging environment. Students will be introduced to the many systems that ensure success, including monitoring room inventory, communication, staffing, yield management and data mining to predict consumer habits. Prerequisites: None.

**SMGT1675 Hotel Front Office Management** 3 cr  
This course provides a hands-on tour of the front office in a lodging establishment. Curriculum includes a computerized simulation of the front office processes from guest check-in thru night audit. This is on-the-job training in the classroom. Prerequisites: None.

**SMGT1680 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. Prerequisites: None.

**SMGT1685 Hospitality and Tourism Guest Services** 2 cr  
Hospitality and tourism customers experience satisfaction when the combination of positive product AND service exist. In this course students will learn listening techniques and customer service skills. Hospitality and tourism case studies, tapes and other media give students first-hand experience in providing quality guest services. Problem solving is an important element of the curriculum. Prerequisites: None.

**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. Prerequisites: None.

**SMGT1705 Thinking and Learning (Acc)** 2 cr  
Develop your critical thinking skills. Learn how to effectively acquire new knowledge, analyze it, and integrate it. Acquire strategies and techniques for learning more in less time and deeply retaining it. Discover how to apply learning styles, multiple intelligences, mindmapping, and other accelerated learning tools for success in an accelerated program. Prerequisites: None.

**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. Prerequisites: None.

**SMGT1815 Team Building (Acc)** 2 cr  
Develop the skills and knowledge to cultivate productive work teams. Identify the types and benefits of teams and work groups and the stages of team development. Learn to develop team mission, purpose, and goals. Apply techniques for team decision making and conflict resolution. Learn to lead a team through team self-evaluation, developing a team training plan, recognizing achievements, learning from mistakes, celebrating accomplishments, and when the time comes, disbanding with style. Prerequisites: None.

**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. Prerequisites: None.

**SMGT1875 Training and Developing Employees (Acc)** 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. Prerequisites: None.

**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. Prerequisites: None.

**SMGT1970 Casino Operations** 3 cr  
This course provides a comprehensive view of casino operations. From the slot club, cage operations, casino floor design and into the management office, students will be guided through the operations of a casino and introduced to patronage motivation. Prerequisites: None.

**SMGT1975 Casino Products: Protections and Probabilities** 3 cr  
From fraud and theft protection, to understanding the theory of various casino games, this course includes mathematic principles, probability theory, basic accounting and reporting information necessary for success in the casino industry. Prerequisites: None.

**SMGT2001 Management Skills I, Foundations in Management 3 cr**  
This course is part I of three parts of the process of obtaining certification as a Certified Manager, from the Institute of Certified Professional Managers. Prerequisites: None.

**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.

**SMGT2020 Negotiation Skills 1 cr**  
Uncover the secrets to "win -- win" negotiations, based on collaborative principles. Learn a system to prepare for and conduct successful negotiations. Assess your negotiating style and develop a personal negotiation strategy. Apply skills in any situation in which issues are resolved through negotiation. Prerequisites: None.

**SMGT2030 Motivation in the Workplace 1 cr**  
The motivated employee learns fast, deals courteously and efficiently with customers, is cooperative with other employees, and is committed to helping you achieve the kind of results that you are seeking. Motivation comes from within; however, by following the recommendations of this course, you can unlock, enhance, and direct the motivating forces within the employees who report to you. Prerequisites: None.

**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. Prerequisites: None.

**SMGT2050 Statistical Process Control I 2 cr**  
Statistical Process Control (SPC) forms the foundation for score keeping and breakthrough improvements in product and service quality. This course is designed to have you become competent in using SPC concepts and integrating them with basic tools needed to identify and eliminate special cause in quality problems. SPC is presented in a workshop format to give you hands-on experience in learning the use of statistical and basic problem-solving tools. You will apply the new learning to work situations. Prerequisites: None.

**SMGT2051 Statistical Process Control II 2 cr**  
Use and apply each of the seven standard tools of quality. Define how much management supports the use of these tools in the workplace. Participants will be able to apply SPC as it relates to their own environment and support process improvements projects by correctly collecting and recording meaningful data. Prerequisites: None.

**SMGT2070 Organizational Dynamics 1 cr**  
Examine the differing ways in which organizations function based on culture, values, structure, norms, rituals, and relationships. Learn to read cultures and navigate your path through the real communication and decision making channels not seen on the organizational chart. Consider implications for personal and organizational effectiveness. Prerequisites: None.

**SMGT2080 Labor Relations 1 cr**  
Understand the historic and legal context for modern labor relations. Develop a practical understanding of how to manage four major points of contact between management and a bargaining unit: union organizing, collective bargaining, contract administration, and grievance arbitration. Practice skills through case study analysis, the mock negotiation of a realistic collective bargaining contract, and the simulation of a grievance arbitration. Prerequisites: None.

**SMGT2090 Managing Problem Performance 1 cr**  
Turn a difficult employee into a productive team member. Identify performance problems and develop tools to deal with performance concerns. Uncover root causes of inadequate performance and help your people achieve improved results. Role-playing exercises will be used to demonstrate techniques for identifying and dealing with problem behavior. Properly addressing performance issues can result in increased productivity and job satisfaction for all involved. Prerequisites: None.

**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 professional growth and mobility. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**SMGT2120 Multicultural Conflict Resolution 2 cr**  
This course focuses on building multicultural conflict resolution skills needed to improve the workplace relationships by understanding the concept of cultural clashes, practicing conflict management prevention, mastering negotiating skills across cultures, building multicultural communicational skills, developing mediation techniques, understanding the conflict management continuum resolving multicultural conflict, and comprehending the Alternative Dispute Resolution progression. Prerequisites: None.

**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. Prerequisites: None.

**SMGT2130 Creativity and Problem Solving 3 cr**  
This course will explore the need for and use of creativity and innovation in today's global and multi-cultural business environment. Assess your level of imagination by discovering your creative mind and how you can best put it to work in organizational or personal situations. Learn techniques to solve problems creatively involving teams and anticipating potential areas of conflict. Challenge conventional thinking by learning techniques to improve creativity, group participation and gaining approval and support decisions for successful implementation. Students will study findings of current problem-solving research and apply them to ethical and international problems. Prerequisites: None.

**SMGT2150 Appreciating Differences in the Workplace 1 cr**  
Learn about yourself and your preferences through instruments such as the DISC Personal Profile or Meyers-Briggs Type Indicator. Consider how your personal style interacts with the styles of others on the job and in everyday life. Analyze the fit between your style and your job and its implications on career goals. Build an objective frame of reference for addressing emotional and interpersonal issues within relationships at home and on the job. Prerequisites: None.

**SMGT2415 Advanced Sales Strategies 3 cr**  
This course focuses on factors influencing customer relationship strategies. Key topics include self-image, nonverbal communications and ethics as foundations for relationships in selling. The student will examine the important role of complete and accurate product, company and competitive knowledge in personal selling as they develop product strategy. Developing a customer strategy includes social influences, perception, emotional and rational buying behavior. Opportunities will be provided for students to plan, deliver, and critique actual sales presentations. The student will learn the steps of a sales demonstration and negotiating buyer resistance. Prerequisites: None.

**SMGT2755 Operational Workplace Safety 2 cr**  
This course is designed to meet and exceed the Minnesota State Statutory requirements for the twelve (12) hours pre-assignment training for Protective Agents mandated by the Minnesota Statute 326.3361, Subdivision 1 to 4, and Administrative Rules 7506.0100 to 7506.2900. A must course for persons interested in obtaining a career in the private security industry or individuals who want to raise their security awareness in today's environment. Prerequisites: None.

**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 Vis Com Department. Prerequisites: None.

**VCOM1006 Color Theory and Applications 2 cr**  
This course will take the basics of art fundamentals and apply them to the development of promotional graphic design projects. The study of psychological responses to color will be emphasized when used to design various graphics. The student will be able to apply these design fundamentals to all aspects of the creative arts field. Prerequisites: None.

**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. Prerequisites: None. \*\*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. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**VCOM1030 Visual Design Fundamentals 3 cr**  
This course will take the principles of design along with art fundamentals and apply them to the development of graphic design projects. Students will be introduced to basic drawing techniques to illustrate their ideas. The elements of design and color will be studied. Presentation skills and professional attitude will be practiced. Specific emphasis will be made in developing creativity and overcoming creative blocks. The student will be able to apply these design fundamentals to all aspects of the visual communications field. Prerequisites: None. \*\*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, Basic Drawing.

**VCOM1040 Basic Drawing 3 cr**  
This course is designed to provide the artistic student the basics of drawing. General methods, mediums and styles will be explored. The elements and principles of art and design will be applied to various drawing projects. Uses of drawing in design are included in the focus. Students will study presentation and preservation of original artwork. Prerequisites: None. \*\*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 drawing is explained as well as drawing style and use of color. Prerequisites: None.

**VCOM1060 Creative Problem Solving 3 cr**  
In this course various methods of solving creative problems will be explored through design projects. The elements and principles of design will be utilized applying methods of creative problem solving. Prerequisites: None.

**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. Prerequisites: None.

**VCOM1095 Illustration Fundamentals** 3 cr  
This course covers the basic concepts in illustration techniques. Projects will be assigned to develop illustration skills and uses of various media. The history of illustration and general design styles will be examined. Visual concept development and communication through illustration will be explored through research and application. Prerequisites: VCOM1040.

**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-Printing Lab II which continues into color enlarging. Prerequisites: None.

**VCOM1320 Printing Lab II** 2 cr  
This photography course serves as the second half of the Introduction to Custom Printing (VCOM 1310) and picks up where Printing Lab I leaves off. After reviewing and practicing the necessary skills, techniques and equipment needed to produce good b/w enlargements a thorough discussion of color theory will be covered. Projects in color correction and judgments will constitute the main areas of study in this course. Prerequisites: VCOM1310.

**VCOM1330 Color Printing Lab I** 2 cr  
This photography course serves as the equivalent to the first half of VCOM 1560- Custom Color Printing. The student will be introduced to custom color enlarging techniques on different color papers to become more proficient at color and print quality judgment. Techniques on dodging, burning and vignetting will be covered as well as other techniques. Prerequisites: VCOM1310 or VCOM1541 and VCOM1320.

**VCOM1340 Color Printing Lab II** 2 cr  
This photography course serves as the equivalent to the second half of VCOM 1560- Custom Color Printing. A custom printing technician needs to be able to produce large, professional quality color enlargements ready for selling and displaying. This course prepares the student for such a task by covering large format custom enlarging techniques on different color papers as large as 30 x 40 inches. Techniques on enhancing, mounting, matting, texturizing and displaying large prints will be covered. Prerequisites: VCOM1330 and VCOM1541. Varies.

**VCOM1370 North Shore Photography Workshop** 1 cr  
This course is a 3-day field trip to the North Shore of Minnesota. Here we explore the tips and techniques of effective nature photography. We spend part of the time in informative lectures and slide shows held on site with the rest of the time spent in the field under the guidance of the instructor. Topics such as advanced composition, creative use of filters, lens and viewing angles, difficult metering situations and effective equipment operation are covered throughout the workshop. Students will come away with a new appreciation and understanding of nature photography as well as some great images of one of Minnesota's most beautiful areas. Repeatable for up to three credits. Prerequisites: VCOM1020 or equivalent.

**VCOM1380 Basic Photography** 1 cr  
Using the 35mm camera and most of its controls will be the basis for this on-line photography course. The student will learn how to create good exposures through the use of f-stop and shutter speed controls in natural lighting conditions. In this course we will concentrate on using the depth-of-field controls in emphasizing creative image control. The student will combine the knowledge of different films and exposure techniques with the study of basic artistic composition to produce pleasing images. Prerequisites: None.

**VCOM1400 Intro QuarkXPress** 2 cr  
Students will become familiar with QuarkXPress an electronic layout program. Emphasis will be placed on software operation. Use of text, graphics, tabs, style sheets, and master pages will be incorporated into projects. Prerequisites: VCOM1000 recommended. \*\*Articulated\*\*

**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: VCOM1000 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. Prerequisites: None.

**VCOM1422 Print Process I** 2 cr  
Students are introduced to the history of print and explore a variety of print processes (flexo, letterpress, lithography, digital, etc.) A general overview of print process will include: basic paper characteristics and selection, imposition and folding, color keys, and job work flow. Prerequisites: None.

**VCOM1430 Intro InDesign** 2 cr  
Students will become familiar with Adobe InDesign as an electronic publishing program. Emphasis will be placed on software operation. Use of text, graphics, tabs, style sheets, and master pages will be incorporated into projects. Prerequisites: VCOM1000 recommended.

**VCOM1435 Proofreading Fundamentals** 1 cr  
Students will learn basic proofreading techniques. Proofing marks will be learned and used to mark text. Proofing techniques will be used to identify proofing errors. Prerequisites: None.

**VCOM1440 Vinyl Signage** 1 cr  
Students will become familiar with the vinyl sign maker using FlexiSignPro software. Basic signage will be discussed. Projects will include single and multi-color vinyl. Transfer, weeding and registration will be covered. Prerequisites: None. 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: VCOM1020 required (may be taken concurrently).

**VCOM1520 Basic Processing & Monitoring** 3 cr  
In this course the student will be introduced to the fundamentals of black/white and color film and paper processing. With the emphasis on quality, we will cover how processing, both by manual sinklines and by automatic machines, affects the quality and consequently the salability of the final print. Four different b/w processes and three color developers will be covered. The plotting and monitoring of all these processes will be the heart of this course. Prerequisites: None.

**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. Prerequisites: None.

**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: VCOM1020 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. Prerequisites: None.

**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: VCOM1020, 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 softwares will be used and evaluated during the course. Prerequisites: VCOM1000. \*\*Articulated\*\*

**VCOM1710 Reporting 2 cr**  
Reporting is a course on the basics of writing and reporting for newspapers and magazines. Students will learn how to gather and organize the elements of a story using the inverted pyramid and Associated Press style. Grammar, caption writing, editing, layout, law and ethics will also be covered. Prerequisites: None.

**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, outline writing, layout, visual storytelling, Associated Press style, and business skills. Prerequisites: None.

**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 will be covered. 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: VCOM1020, 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: VCOM1020, VCOM1515, or instructor approval.

**VCOM2035 Layout II 3 cr**  
This course covers development of advanced page layout skills. It includes creating effective marketing pieces through the 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 cr**  
In this course the students will study and apply methods in commercial illustration. Advanced drawing skills and techniques for illustration will be developed and various media uses will be explored. Students work to develop individual styles through advanced assignments. Prerequisites: VCOM1095.

**VCOM2095 Painting for Illustration 2 cr**  
In this course the students will study and apply advanced methods in commercial illustration. Painting skills and techniques for illustration will be developed and various media uses will be explored. Students work to develop individual styles through advanced assignments. Prerequisites: VCOM1095.

**VCOM2400 Advanced Photoshop 3 cr**  
This course builds on the tools and techniques learned in VCOM 1010 (Intro Photoshop). The student will use and become more proficient with all the tools used to modify photographs. Some of the special effects power of these software will be introduced during this class. Emphasis will be placed on using this software to produce commercially acceptable photographs and advertisements, as well as hard copy outputs. Prerequisites: VCOM1010.

**VCOM2415 Advanced Electronic Publishing 3 cr**  
Students will create advanced electronic publishing projects using either Page-Maker or QuarkXPress. Emphasis will be on advanced publishing techniques, use of color, color separations, and design of portfolio quality projects. Prerequisites: VCOM1400 or VCOM1430.

**VCOM2420 Advanced Computer Illustration 3 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 Print Process I (VCOM1422). Students will develop an understanding of the print process including: negative stripping 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: VCOM1020, 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 pre-visualization, use of traditional and digital 35mm cameras, cut-line writing, layout, visual storytelling, copyright, libel, privacy, Associated Press Style, and business skills. Prerequisites: VCOM1020, 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. Prerequisites: None.

**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: VCOM1020, VCOM1515 or instructor approval.

**VCOM2565 Crime Scene/Forensic Photography** 2 cr  
This course will teach student to apply the basics of 35mm camera operation to the process and procedures of various crime scene and forensic photography investigations including, but not limited to: arson cases, auto accidents and auto-related death, break-ins, domestic abuse, personal injuries, homicides. Prerequisites: VCOM1020, VCOM1515.

**VCOM2575 Medical Photography** 2 cr  
Medical Photography focuses on traditional and digital photographic methods to accomplish a range of services for Medical Schools, Health Science departments, hospitals, clinics, and government agencies. Medical photographers are specifically trained to provide high quality medical products and services. This course will teach the student to apply photographic and lighting techniques to the needs of the health care profession. Prerequisites: VCOM1020, VCOM1515 or instructor approval.

**VCOM2581 Photo Portfolio** 2 cr  
This hands-on course will guide the student through the creation of a photography-based portfolio. Concepts in assemble techniques, display options and presentation methods will be at the heart of this course. Upon completion the student will have an industry-ready photographic portfolio in preparation for career exploration. Prerequisites: Should be taken during the last semester prior to graduation and concurrently with VCOM2000.

**VCOM2582 Portfolio Development (Photographic Entrepreneur)** 2 cr  
This class will concentrate on preparing the student to enter the photography job market. Students will be required to create a finished professional portfolio demonstrating their photographic skills. The portfolio will include examples of film and digital photography. Images for inclusion in the portfolio will be created using a variety of photographic formats, and techniques, and will emphasize the marketing and business plan developed for a start-up business. As a part of this course, students are required to participate in a formal portfolio showing near the end of their final semester of school. Prerequisites: ENTR1000, ENTR1150, ENTR1430, ENTR1900, VCOM1010, VCOM1020, VCOM1515, VCOM1570, VCOM1580, VCOM2510, VCOM2000 - 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, VCOM1020, 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, VCOM1020, 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. Prerequisites: None.

**VCOM2650 Multimedia Project Management** 2 cr  
This course is designed to introduce the student to the methods of design and construction of a multimedia production. Students will learn project management, client contact and presentation techniques. Students will learn to integrate information from a variety of resources into a multimedia production design. Teamwork and group participation in project development will be stressed. Prerequisites: VCOM1000 recommended.

**VCOM2655 Intro Director** 3 cr  
This is an introductory course in the use of 3D modeling and animation software. Basic modeling techniques, use of animation software, basic animation and understanding the 3D process will be stressed. Students will create models that will be animated. Emphasis will be placed on movement, application of textures, lighting, camera movement, and project continuity. Projects will be exported in video format for use in multimedia and web page projects. Prerequisites: VCOM1000, 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: VCOM1000, VCOM1010 required, VCOM1410 recommended.

**VCOM2670 Introduction to Authorware** 2 cr  
This course is designed to give the student introductory experiences in Authorware Professional, Macromedia's computer based training software. Students will concentrate on basic tool and menu operation, flow charting, storyboard development, and basic multimedia construction. Prerequisites: VCOM1000, VCOM1010 required, VCOM1410 recommended.

**VCOM2680 Introduction to Flash** 2 cr  
Students will use Macromedia object based 2D animation program to create animated segments for use in web pages. Timing, storyboarding, design and software tools will be emphasized. Prerequisites: VCOM1010, VCOM1410 recommended. \*\*Articulated\*\*

**VCOM2685 Web Page Construction I** 2 cr  
This class will familiarize students with the concepts of web page design and construction. Emphasis will be on good design for both graphic elements and logical web page information flow. Prerequisites: VCOM1010 recommended and VCOM1410 required or instructor approval. \*\*Articulated\*\*

**VCOM2690 Web Page Construction II** 3 cr  
In this class students will become familiar with advanced web page design techniques. The emphasis will be on good design of both graphic elements and logical web page information flow. This advanced course will introduce students to a variety of web page construction software packages and tools. Additionally issues dealing with file transmission (audio, video, multimedia interaction) will be discussed. Prerequisites: VCOM2685.

**VCOM2694 Advanced Multimedia Production** 2 cr  
This course is project intensive. Students will use skills learned in Intro Director and/or Intro Authorware to create portfolio quality multimedia production. Emphasis will be placed on use of scripting language, logical information flow, story boarding, and quality graphic design. Prerequisites: VCOM1001, VCOM1010, VCOM1410, VCOM2655.

**VCOM2700 Advanced Flash Animation** 3 cr  
This course is designed to give students additional instruction and experience in Macromedia's Flash Animation software. This is a project driven course and students will work on a variety of presentations for delivery on the web. Emphasis will be placed on design and the use of scripting language to control Flash animations. Prerequisites: VCOM2680.

**VCOM2721 Portfolio for Graphic Design** 2 cr  
This class will concentrate on preparing the student to enter the multimedia, print industry and illustration job market. Students will be required to create a finished graphics portfolio in the area of their degree. Students will use skills learned in other software applications to refine and develop projects for use in their portfolio. Projects will be created using multimedia and web authoring programs. Projects for inclusion in the portfolio will be created in pixel based, object based, layout, web authoring and multimedia programs. Prerequisites: This course must be taken in conjunction with VCOM2730.

**VCOM2722 Portfolio for Multimedia and Web Development** 2 cr  
This class will concentrate on preparing the student to enter the multimedia, print industry and illustration job market. Students will be required to create a finished graphics portfolio in the area of their degree. Students will use skills learned in other software applications to refine and develop projects for use in their portfolio. Projects will be created using multimedia and web authoring programs. Projects for inclusion in the portfolio will be created in pixel based, object based, layout, web authoring and multimedia programs. Prerequisites: This course must be taken in conjunction with VCOM2730.

**VCOM2724 Portfolio for Applied Visual Arts** 2 cr  
This class will concentrate on preparing the student to enter the applied arts fields which may include multimedia, print industry and illustration job market. Students will use skills learned in art mediums and software applications to refine and develop projects for use in their portfolio. Projects for inclusion in the portfolio will include art mediums as well as in pixel based, object based, and layout applications. Prerequisites: This course must be taken in conjunction with VCOM2730.

**VCOM2730 Career Research Skills** 1 cr  
This 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. Prerequisites: None.

**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: VCOM1000, VCOM1010, VCOM1410, VCOM2660.

**VCOM2810 3D Modeling and Animation Capstone** 5 cr  
Students will work on complex animation projects for multimedia and web display. Students will be expected to produce industrial quality animations using advanced modeling and animation techniques. Prerequisites: VCOM1000, VCOM1010, VCOM1410, VCOM2660, VCOM2800 required (with instructor approval may be taken concurrently with VCOM2800).

**VCOM2820 Advanced Typography** 2 cr  
Advanced Typography is a continuation of VCOM1415 Typography Fundamentals. Students will develop a greater understanding of type as a key element of design. The course will concentrate on designing with type, understanding the relationship between type families and type styles, selecting type for emotional impact, and using color and texture in type. Additional topics will include type and copyright requirements, computer type faces and type on the web. Prerequisites: VCOM1415.

## WELDING TECHNOLOGY

**WELD1010 Oxy Fuel and Stick Welding** 2 cr  
This course covers the introduction to metals, shop safety, along with technique and theory of welding, brazing, cutting and heating. This course is also the basis for all electric welding processes and is strongly recommended before taking any electric welding process. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

**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<sub>2</sub> 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. Prerequisites: None.

**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. Prerequisites: None.

**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. Prerequisites: None.

## WOOD FINISHING TECHNOLOGY

**WOOD1004 Woodworking** 3 cr  
This course covers the safety and operation of woodshop handtools and power tools. Students will identify and create joinery used in furniture construction. An emphasis will be placed on the duplication of furniture parts and the repairing of existing furniture parts. Prerequisites: None.

**WOOD1007 Methods of Fastening** 3 cr  
This course covers the procedures and materials used in the disassembly and re-assembly 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. Prerequisites: None.

**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: WOOD1001, WOOD1004, WOOD1007, WOOD1009, WOOD1012, WOOD1015, and WOOD1019.

**WOOD1026 Advanced Finishing Techniques** 5 cr  
This course covers advanced wood finishing techniques on new wood products and advanced wood restoration techniques. New wood product techniques involve spraying dyes, mixing color into the finish, production spray systems, using industrial coatings including transparent and opaque coatings, using power sanders throughout the finishing schedule and evaluating coating performance. Restoration techniques include hand caning, rushing, advanced color matching techniques, advanced restoration techniques, with an emphasis on problem solving finishing defects. Prerequisites: WOOD1000, WOOD1003, WOOD1006, WOOD1009, WOOD1012, WOOD1015, WOOD1018, 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](mailto:admissions@dctc.edu)

## TUITION

651-423-8045 | [tuition@dctc.edu](mailto:tuition@dctc.edu)

## REGISTRATION

651-423-8038 | [registration@dctc.edu](mailto:registration@dctc.edu)

## FINANCIAL AID / SCHOLARSHIPS

651-423-8299 | [finaid@dctc.edu](mailto:finaid@dctc.edu)

## MAP LEGEND



**Dakota County Technical College**  
1300 145th Street East (County Road 42)  
Rosemount, MN 55068  
651-423-8301



**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



Dakota County Technical College, a member of the Minnesota State Colleges and Universities system, is committed to a policy of nondiscrimination in employment and education opportunity. No person shall be discriminated against in the terms and conditions of employment, personnel practices, or access to and participation in, programs, services, and activities with regard to race, sex, color, creed, religion, age, national origin, disability, marital status, status with regard to public assistance, sexual orientation, or membership or activity in a local commission as defined by law.

Harassment of an individual or group on the basis of race, sex, color, creed, religion, age, national origin, disability, marital status, status with regard to public assistance, sexual orientation, or membership 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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 DAKOTA COUNTY TECHNICAL COLLEGE

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