2023-2024 | ACADEMIC CATALOG

DAKOTA COUNTY
TECHNICAL COLLEGE

A Member of Minnesota State

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GENERAL INFORMATION

UNDERSTANDING THIS GUIDE

Requirements of this catalog are subject to change as a result of state and federal legislation, policies of the Minnesota State Colleges and Universities Board of Trustees, and other reasons deemed necessary by the faculty and administration of Dakota County Technical College.

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

MISSION, VISION & VALUES

MISSION
Learn, discover, and build a better future: DCTC is dedicated to education for employment and life-long growth.

VISION
At DCTC, we aspire to create a transformational education for every student founded on belonging, learning, support, clear pathways, and community engagement.

Students at DCTC will say of their education:

Belonging: "I am valued for who I am."

Learning: "I am engaged in meaningful learning."

Support: "I have the support I need."

Clear Pathways: "I know where I am going and how to get there."

Community Engagement: "I am engaged in community."

VALUES
Student Centered: We recognize and build on students' strengths and perspectives. We support them in taking an active role in their learning and in navigating our college. We provide inclusive, high-quality, and timely services. We also design our services and programs with our diverse students' needs in mind.

Equity Minded: We take responsibility for creating an inclusive learning and working environment where our students and colleagues can thrive. We identify and address patterns of inequity, informed by a social and historical understanding of exclusionary practices in American higher education.

Community Engaged: We collaborate with employers, educational institutions, and community organizations to enhance our respective missions and strengthen our communities.

ACCREDITATION & APPROVALS

Dakota County Technical College is accredited by the Higher Learning Commission, a regional accreditation agency recognized by the U.S. Department of Education. DCTC also holds occupationally specific accreditation in a number of its programs.

CONSTRUCTION AND MANUFACTURING
- The Electrical Construction Maintenance program is approved by the Minnesota Board of Electricity.
- The Interior Design program is accredited by the National Kitchen and Bath Association.

HEALTH
- The Dental Assistant program is accredited by the Commission on Dental Accreditation of the American Dental Association.
- The Medical Assistant program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) on recommendation of the Curriculum Review Board of the American Association of Medical Assistants Endowment (AAMAE).
- The Nursing Assistant program is accredited by the Minnesota Department of Health.
- The Practical Nursing program is approved by the Minnesota Board of Nursing.
- The Veterinary Technician program is accredited by The American Veterinary Medical Association (AVMA).

TRANSPORTATION
- The Automotive Technician program, Auto Body Collision Technology program, Automotive Service Educational Program, and Heavy Duty Truck program are accredited by the ASE Education Foundation.
- The Heavy Construction Equipment program is accredited by the Association of Equipment Distributors (AED) Foundation

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

ADMISSIONS

651-423-8266 • admissions@dctc.edu

Students interested in exploring higher education options and those beginning the application process are encouraged to attend DCTC's Information Session, every Tuesday 1-2:30 p.m. At the session, students are given the opportunity to gather information

on the college, the admissions requirements, and visit classrooms, labs and shops. Learn more at dctc.edu/visit.

NEW STUDENT ADMISSION

Admission to our academic programs operates on a first-come, first-served basis. Applicants must complete the items listed below to secure a spot in a degree, diploma, or certificate:

1. *Submit a DCTC Application:* available in Enrollment Services, or online at dctc.edu/onlineapp

2. *Pay a $20 non-refundable application fee:* online payment is accepted with a credit card at dctc.edu/admissions

3. *Submit transcripts:* all students must submit a copy of their high school transcript or high school diploma. GED recipients must provide a copy of their GED certificate. Official college transcripts are required from students with previous degrees or when transferring in credits. Official non-Minnesota State college transcripts must be sent directly from the previous college in a sealed envelope.

4. *Complete the ACCUPLACER Placement Test:* for a testing schedule, call 651-423-8657 or visit dctc.edu/accuplacer

Note: Applicants must have a High School Diploma or GED to apply for financial aid. In addition, applicants to specific programs must meet published, program-specific admissions requirements.

RETURNING STUDENT ADMISSION

Students who have been absent less than 5 years, can reactivate their file and must comply with the admissions requirements that are in effect by checking out the current admissions requirements as listed on dctc.edu/admissions. Students should contact the Admissions Specialist to reactivate their file and will also need to verify address, phone and email to update any changes. Students will only be able to select current majors with the current catalog year as a major choice.

TRANSFER STUDENT ADMISSION

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

Courses are automatically reviewed for transfer with submission of an official transcript. Transfer of technical credits need to have a grade of C or higher, and general education courses are transferable with grades of D or above.

For an unofficial review of general education courses or technical credits, contact an Academic advisor in Student Services. Official transcripts are not necessary for an unofficial review but will be required for final verification and transcription of transfer credits.

INTERNATIONAL STUDENT ADMISSION

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

1. Submit International application form with $20 application fee.

2. Provide proof of English proficiency (Official TOEFL score of 61 or higher **OR** ACCUPLACER qualifying scores on Reading Comprehension (240) OR Official U.S. college or university transcript with an English composition/writing course with a "C" or better.).

3. Complete the Financial Responsibility Form and submit with three consecutive months of original, certified financial statements in English & USD that meet balance requirement listed on Financial Responsibility Form.

4. Provide copy of passport, birth certificate and/or visa.

5. Provide proof of high school completion (copy of high school certificate/transcript translated into English).

6. Send official U.S. college transcripts (if applicable).

7. Provide documentation of immunization and vaccination history.

8. Provide F-1 Transfer Form, a copy of original I-20, a copy of your visa, and a copy of your I-94 form (for students with an F-1 visa who are transferring to DCTC).

International students are sent written notification of acceptance and an I-20 after all documents are received and reviewed. International students pay the resident tuition rate.

INTERNATIONAL STUDENT ADMISSION DEADLINE

Students outside the United States:
    June 1 for Fall Semester
    October 1 for Spring Semester

Students inside the United States:
    July 1 for Fall Semester
    November 1 for Spring Semester

For more information, contact admissions@dctc.edu.

POST-SECONDARY ENROLLMENT OPTION (PSEO) ELIGIBILITY AND ADMISSION

High school students who are residents of Minnesota may participate in the PSEO program upon successful completion of the admissions process. The PSEO program offers an opportunity for High School students to take college-level courses oncampus or on line at DCTC. High School students who are residents of Minnesota may participate in the PSEO program upon successful completion of the admissions process.

1. Meet academic qualifications

   • *All grades:* HS GPA of 2.8 or higher, previous grade of C or better in a college-level English course (official transcript required)

   • *10th grade:* Score of "meets or exceeds expectations" on 8th grade MCA

   • *11th and 12th grades:* Score of "meets or exceeds expectations" on 10th grade MCA, composite score of 21 or higher on the ACT, or achieved scores of 530+ in Math and 480+ in Evidence Based Writing on the SAT

   • Students who do not meet the above qualifications may also qualify by earning a 250 or better on the Reading Accuplacer assessment

2. Fill out a PSEO application at dctc.edu/pseo

3. Submit a Notice of Student Registration form (signed by student, parent, and HS counselor), a HS transcript and the PSEO contract.

Students applying for a high demand program may have additional steps.

PSEO ADMISSION DEADLINE

All documentation paperwork must be turned in and completed by the following deadlines for admission to the PSEO program:

July 1 for fall semster
December 1 for spring semester

To discuss PSEO options, email admissions@dctc.edu.

UNDECLARED MAJOR

Students do not need to complete the admissions process if all four of the items below apply:

1. Receive veterans' benefits
2. Complete a degree, diploma, or certificate
3. Enroll full time
4. Receive financial aid

RESIDENCY

Residency status will be as determined by Minnesota Statute 135A.031, subd.2.

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 your academic and financial aid advisor on current definitions as they apply to specific grants and loans.

DEGREES, DIPLOMAS, AND CERTIFICATES

Associate in Applied Science Degrees: are awarded for successful completion of a program of 60 to 85 semester credits with a minimum of 20 semester credits delivered by DCTC. An A.A.S. degree is primarily intended to prepare students for employment. An A.A.S. program includes a minimum of 15 semester credits of general education. General education courses shall be selected from at least three of the 10 goal areas of the Minnesota Transfer Curriculum. At least 30 semester credits shall be program-related occupational or technical credits.

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

Diplomas: are awarded for successful completion of a program intended to provide students with employment skills. Diplomas vary from 31 to 72 semester credits. At least one-third of the credits shall be delivered by DCTC.

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.

DEGREE SEEKING STUDENTS

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

Students must make payment arrangements with the Business Office or pay their tuition online at dctc.edu/admissions/pay-for-college/tuition-fees/tuition-payment.

Those interested in setting up a payment plan should contact the Business Office at business_office@dctc.edu.

NON-DEGREE SEEKING STUDENTS

Students wanting to attend on a part-time basis and are not pursuing a degree may register as an undeclared student. Students seeking non-degree courses are not veteran or financial aid eligible and cannot be full-time. Online, mailed or faxed registration requests will be accepted during the open registration period published on the college calendar. Requests received prior to this date will be held and processed in the order in which they were received after open registration begins. Visit dctc.edu/register for additional details and to download the undeclared registration form.

CHANGE OF REGISTRATION (DROP, ADD, WITHDRAWAL)

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

CREDIT FOR PRIOR LEARNING

Credit for Prior Learning (CPL) can give you a head start in completing your diploma or degree. There are multiple options for all students. For more information, visit dctc.edu/cpl or contact Student Services.

TRANSFER FROM DCTC TO ANOTHER COLLEGE

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

MINNESOTA TRANSFER CURRICULUM (MNTC)

The Minnesota Transfer Curriculum (MnTC) is the format in which general education is defined and accomplished within the public two- and four-year colleges and universities in Minnesota. Completion of an MnTC course at one institution enables a student to receive credit for lower division general education MnTC coursework upon admission to other Minnesota State colleges and universities as well as the University of Minnesota. DCTC provides general education in the MnTC format and accepts MnTC courses from other Minnesota State colleges and universities and from the University of Minnesota campuses.

TUITION & FEES

tuition@dctc.edu

Tuition rates are set by the Board of Trustees of Minnesota State and are subject to change without notice. Tuition is based upon the number of credits the student takes. Books and supplies are additional and vary for each student each semester, depending on course selection. For more information, visit dctc.edu/admissions/pay-for-college/tuition-fees.

SENIOR CITIZENS

Minnesota residents 62 or older may register for credit courses on a space-available basis and are able to register the second day of the semester. Tuition is $20 per credit plus applicable fees. The following fees are applicable: technology, MSCSA, health, parking, non-refundable application fee and all course fees. Tuition and some additional fees are waived if senior citizens choose to audit the course.

FINANCIAL AID & SCHOLARSHIPS

finaid@dctc.edu

Student financial aid is monetary assistance made available to students who qualify. Approximately 80 percent of the students attending Dakota County Technical College (DCTC) receive some type of financial aid. Financial aid is awarded on the basis of need. Need is determined by a family's financial strength. Items such as income, number in the family, other family members in college, and a number of other criteria are taken into consideration.

At DCTC there are four kinds of financial aid: scholarships, grants, work-study, and loans. Scholarships and grants are funds that do not have to be paid back. Work-study funds are earned by students working part-time on campus or at a non-profit organization off campus. Loans are funds that the student borrows from lending institutions and repays with interest. The purpose of the financial aid programs is to provide financial assistance to students who, without such aid, would find it difficult to attend college. For more information, visit dctc.edu/admissions/pay-for-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 studentaid.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 studentaid.gov.

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

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

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

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

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

Federal Direct Student Loan: This loan allows students to borrow money for education related expenses. The Direct 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 Direct Loan. All students must complete a loan entrance counseling session before applying for a student loan. This can be done at studentloans.gov. Additionally, students must complete a loan exit counseling session before leaving DCTC.

SELF, PLUS, and Alternative Loans: These are additional loans for students and parents of students. Information on these loan programs is available from your advisor in the Enrollment Services Center. The student must complete the FAFSA to access these loan programs.

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

OTHER FUNDING SOURCES

Veteran and Military Benefits: Veterans and military personnel planning to use their education benefits should contact Enrollment Services. All students must apply through this office for certification of eligibility by the college.

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. See dctc.edu/foundation.

COLLEGE SERVICES

DCTC is committed to providing its students with the opportunity to develop the technical skills needed to succeed in their career. The excellent faculty and superb technical facilities contribute to the learning environment. College staff provide a variety of services to complement and enhance each student's success.

ACADEMIC & FINANCIAL AID ADVISING

Each award-seeking, enrolled student at DCTC will be assigned an Academic and Financial Aid advisor. This professional advisor can provide guidance and information to students on financial aid, academic planning, course selection, career options, and graduation preparation. Contact advising@dctc.edu for more information. Academic and Financial Aid advisors are located in Enrollment Services.

ACCESSIBILITY SERVICES

Enrolled DCTC students may be eligible for services if they have a documented disability that significantly limits one or more major life activities. For more information, visit dctc.edu/support-services/accessibility-services.

ACCUPLACER TESTING

Minnesota State schools utilize the ACCUPLACER to assess students' college readiness in Reading and Math. Results of the assessment typically do not affect admission to the college (although some programs require certain scores) but are used to appropriately place students in courses. DCTC offers ACCUPLACER testing year round on a walk-in basis (during the day virtual testing) and other

times by appointment only. Students are encouraged to see if they might be exempt from all or parts of the ACCUPLACER based on MCA, ACT, or SAT scores or past college coursework/degrees. For more information, visit dctc.edu/accuplacer.

BOOKSTORE
bookstore@dctc.edu
Students may purchase books and supplies in the DCTC Bookstore and online. For more information, visit dctcbookstore.com.

CAMPUS ASSESSMENT, REFERRAL, AND EDUCATION (CARE) TEAM
The CARE Team exists to promote, maintain, and enhance a safe and healthy learning and working community in support of DCTC's mission. The Team provides a means by which students, staff, and faculty can identify, report, and respond to situations affecting the success, safety, and overall well-being of the campus community. Referrals can be made through an electronic form available at dctc.edu/support-services/care-team.

CAREER & TRANSFER RESOURCE CENTER
Career Services at DCTC serves as a resource for students needing career assessments, resume building, job-seeking resources, interviewing skill development and transfer information. The center is located in Room 2-202. For more information, visit dctc.edu/support-services/career-and-transfer-resource-center.

CENTER FOR STUDENT SUCCESS
The Center for Student Success is the place to go for tutoring, TRIO/Student Support Services, and studying. The center is available to students for general computer use, printing and Internet access during regular college hours. Charging stations, laptop computer areas and study tables are also available. Visit the Center for Student Success in room 2-101. For more information, visit dctc.edu/support-services/center-for-student-success.

FOOD PANTRY
Dakota County Technical College is designated as Hunger Free Campus. Free food is available for students in the Food Pantry located in 2-303 (next to the Military and Veteran Service Center, above the Bookstore), which has open access whenever the building is open. Students can help themselves to a variety of fresh, frozen, gluten free, and non-perishable food items to eat while on campus or take home. For more information or questions/concerns, email kasey.meyer@dctc.edu.

HEALTH SERVICES
A licensed practical nurse is on duty Monday-Friday from 7 a.m. to 3 p.m. during fall and spring semesters and 7 a.m. to 2:30 p.m. during summer session. Health Services in located in Room 1-501. Please report any medical concerns to Health Services. for more information, visit dctc.edu/support-services/health-services.

LIBRARY
The Library provides information resources and services that support the academic needs and intellectual interests of the College's students and employees. Resources and services include research help, class instruction, library guides, interlibrary loan, course reserves, study spaces, laptops, books, videos, magazines, and online resources. Visit dctc.edu/library or e-mail library@dctc.edu for more information.

OFFICE OF BASIC NEEDS AND WELL-BEING
The Office of Social Navigation supports students with barriers, challenges and life stressors that arise while on their educational journey at DCTC. The resource navigator meets with students to discuss the challenges they are facing and then assists in finding basic needs resources, solutions and supports. For more information, visit dctc.edu/support-services/office-of-basic-needs-well-being.

PROFESSIONAL CLOTHES CLOSET
Located in 2-105, the Professional Clothes Closet is available for students who need a gently used outfit for an interview or a new job, at no cost to the student. To set up an appointment to 'shop' the closet, please email kasey.meyer@dctc.edu.

SAFETY AND SECURITY
A campus security officer is on campus most of the day Monday through Saturday and is available to respond to safety and security concerns on campus. A campus security escort is available in the evenings by calling 651-423-8388. As always, in case of an emergency, dial 911. For more information, visit dctc.edu/support-services/campus-security.

STARFISH EARLY ALERT REFERRAL SYSTEM
Starfish connects students, faculty, advisors and other resources, electronically. It is an "early alert" tool for instructors to identify students in their classes who are struggling academically. Students receive the alert or "flag" via email and also within their Starfish communication platform. Starfish flags, referrals, and other alert items are always available for faculty and staff to use as an additional communication tool, as well as students being able to reach out to service providers such as tutors and technology support.

TRIO/STUDENT SUPPORT SERVICES
The Student Support Services program provides academic development, advising and success strategies towards graduation. Available to eligible DCTC students who are first-generation, meet income guidelines, and/or have a disability. For more information, visit dctc.edu/trio.

TUTORING & TEST PREP

ACCOUNTING, ENGLISH, READING, WRITING, MATH & SCIENCE
Available at no cost to all DCTC students who need academic support. Tutoring is available by appointment only or walk in. For more information, visit dctc.edu/tutoring.

ONLINE TUTORING
Free 24/7 online, on-demand tutoring is available on D2L through Tutor.com. Tutors are always available for a variety of subjects, even late at night when your instructor may not be. DCTC students have access to 15 hours of free online tutoring each semester. Additional free hours can be requested at success@dctc.edu. For tutor.com questions, email studentsupport@tutor.com.

STUDENT ATHLETE TUTORING
Available to any DCTC student athlete who needs additional academic support. For more information, visit dctc.edu/tutoring.

TEAS PREP CLASS

In collaboration with Rosemount-Apple Valley-Eagan Adult Basic Education, DCTC offers its Practical Nursing applicants a free TEAS Prep course. The class is Tuesdays and Thursdays from 2-5 pm for a period of 8 weeks. The class is limited to 25 students and students must commit to the full course length (16 classes). For more information, visit dctc.edu/academics/programs-majors/health-education/practical-nursing/teas-exam-information.

TECHNICAL TUTORING

By appointment only. For more information, visit dctc.edu/tutoring.

STUDENT LIFE

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. For more information, visit dctc.edu/student-life.

ALUMNI ASSOCIATION

Anyone who has ever attended a class at DCTC is eligible for membership in the DCTC Alumni Association. There is no cost to be a member of the Alumni Association. The mission of the Alumni Association is to reunite former students with the college and their programs, and to provide life-long learning opportunities and services to the community. For more information, visit dctc.edu/alumni.

BLUE KNIGHTS ATHLETICS

DCTC participates in NJCAA Division II in baseball, basketball, fast pitch softball, volleyball, men's soccer and women's soccer.

All teams are independent members of the NJCAA Region XIII. DCTC offers athletic scholarships (grant in aid) for participation in varsity athletics as awarded by the head coach of a particular team. Students wishing to play varsity sports for DCTC should visit goblueknights.com, the Student Life Center, or contact the head coach of the team.

CLUBS AND ORGANIZATIONS

DCTC has a variety of program and special interest clubs and organizations where students can get involved and be active outside of the classroom. For more information or to start your own club, visit dctc.edu/clubs.

MILITARY & VETERANS SERVICE CENTER

veterans@dctc.edu

The Military & Veterans Service Center provides support services and program information to military veterans, current military, and their families. The center is located in Room 2-303 (above the bookstore). Kathy Bachman serves as the coordinator of the center that is committed to helping veterans reach their higher education goals. For more information, visit dctc.edu/veterans.

STUDENT SENATE

The Student Senate is the official voice of students and is involved in many decisions made on campus including tuition increases and college initiatives. All students are encouraged to participate in the Student Senate, and each student club and athletic team is strongly encouraged to send representatives to Student Senate meetings. The Senate has the following three sub committees students can join:

- Activities Committee plans and coordinates campus activities and events sponsored by the Student Senate.

- Outreach Committee works to promote Student Life activities to the DCTC community and on Student Life retention efforts. The goal of the Outreach Committee is to create a stronger community among DCTC students, faculty, and staff.

- Student Life Committee studies and makes recommendations to the Student Senate on issues related to finances, including tuition increases and club funding requests.

For more information, visit dctc.edu/student-senate.

WELLNESS CENTER

The Wellness Center is a workout facility available to DCTC students. The Center provides cardio equipment, weight machines and free weights. Qualified staff are available to give first-time users an introduction to the equipment. The Wellness Center is located in Room 1-706. For more information, visit dctc.edu/campus-life/wellness-center.

DAKOTA COUNTY
TECHNICAL COLLEGE
A member of Minnesota State

BUSINESS

PROGRAMS OF STUDY

Accounting

Administrative Assistant

Business Administration

Business Management

Digital Marketing Specialist

Legal Administrative Assistant

Marketing

Medical Administrative Specialist

Public Administration

Small Business Entrepreneurship

Technical Management

TAKING CARE OF BUSINESS

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

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

TRAITS OF THE TRADE

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

- Clarity of purpose
- Outstanding communication skills
- Able to think tactically and strategically
- Desire to lead

Unless otherwise specified, salary data is sourced from careerwise.minnstate.edu.
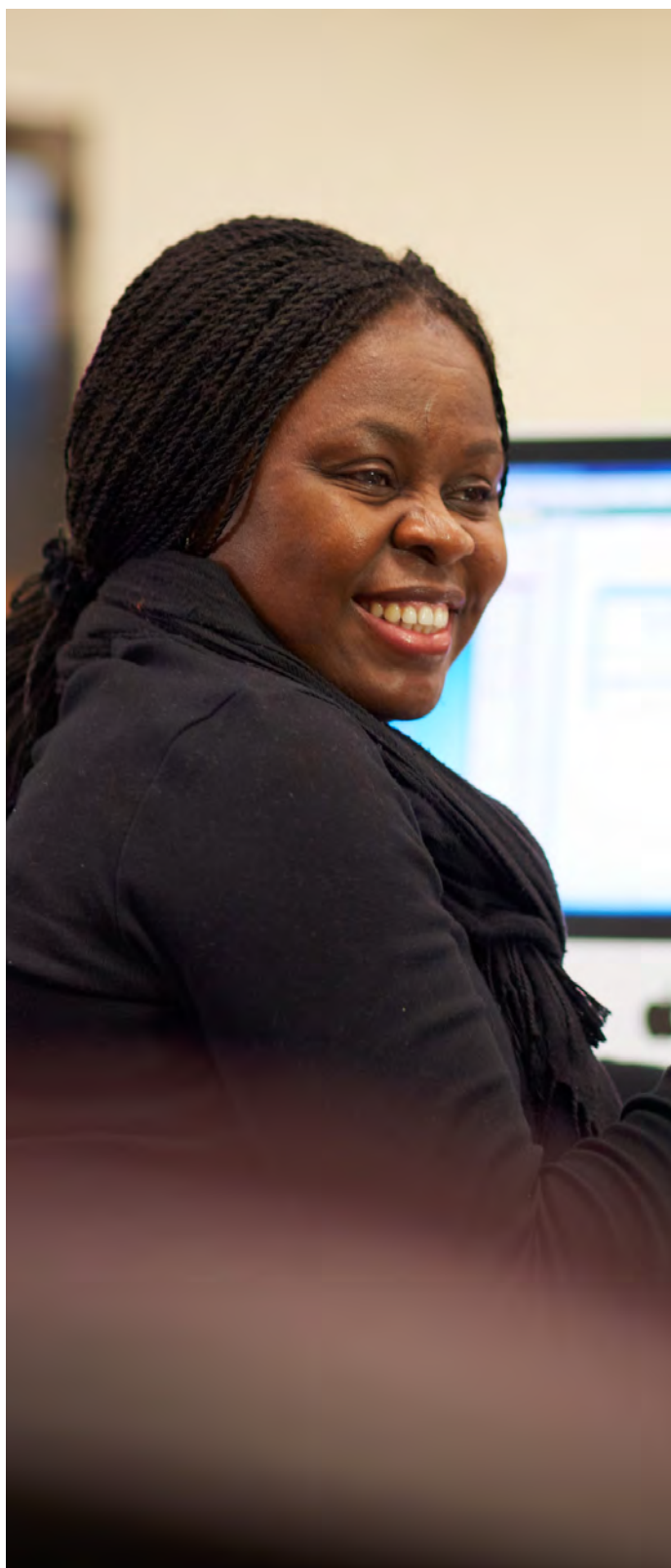
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BUSINESS

ACCOUNTING

Delivery: Fully online, some courses are offered during the day and evening

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

AWARDS

Accountant A.A.S. Degree	60 cr.
Accountant Diploma	54 cr.
Accounting Clerk Diploma	32 cr.
Small Business Accounting Certificate	16 cr.

MAJOR DESCRIPTION

Accounting students are trained to analyze, interpret and record financial information regarding the operations and financial condition of businesses and organizations. Working with spreadsheet and accounting software, they acquire the skills necessary to prepare financial statements, tax returns, and government forms. Students also learn federal and state tax and payroll laws. Accountants need to be life-long learners with the ability to work with all aspects of business.

DEGREE OPTIONS

The Accountant A.A.S. Degree provides basic and intermediate accounting skills to prepare students to enter the workforce as an accountant or to transfer and obtain advanced degrees. The Accountant Diploma provides basic and intermediate skills to enter the workforce as an accountant. The Accounting Clerk Diploma provides basic accounting skills to obtain a career as an accounting clerk. The Small Business Accounting Certificate is designed to provide accounting skills for an entrepreneur to start or manage a business, or for administrative personnel involved in the accounting function of a business.

WORK ENVIRONMENT

Many companies require the ongoing expertise of a staff accountant. As an accountant, you may find yourself working for a manufacturing firm, a hospital, a bank, an insurance company, or a private corporation. In addition, CPA firms, government agencies and not-for-profit organizations also hire accountants.

POTENTIAL JOB TITLES

- Accountant
- Financial Analyst
- Financial Advisor
- Payroll Accountant
- Tax Accountant
- Accounting Clerk
- Receivables/Payables Clerk
- Cost Accountant

SALARY DATA

See latest data at careerwise.minnstate.edu.

- Average Wage: $38.35/hour
- Top Earners: $48.86/hour

ADDITIONAL INFORMATION

Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

ACCOUNTANT
A.A.S. DEGREE

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

First Year – Fall Semester		13 cr
ACCT1010	Principles of Financial Accounting I	4
ACCT1100	Business Law & Ethics	3
ACCT1106	Accounting Mathematics	3
	General Elective (MnTC Goal 3 *or* 4)	3

First Year - Spring Semester		16 cr
ACCT1013	Principles of Financial Accounting II	4
ACCT1206	Payroll Accounting	2
ACCT1306	Spreadsheets	3
ACCT1406	Income Tax	4
COMS1020	Interpersonal Communication	3

Second Year - Fall Semester		17 cr
ACCT2000	Intermediate Accounting I	4
ACCT2110	Managerial Accounting I	4
ACCT2200	Accounting Computer Applications I	3
ENGL1150	Composition I	3
	General Elective (any MnTC area)	3

Second Year - Spring Semester		14 cr
ACCT2003	Intermediate Accounting II	4
ACCT2113	Managerial Accounting II	4
ACCT2206	Fund Non-Profit Accounting	3
	General Elective (any MnTC area)	3

TOTAL PROGRAM REQUIREMENTS 60

ACCOUNTANT
DIPLOMA

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

First Year – Fall Semester		10 cr
ACCT1010	Principles of Financial Accounting I	4
ACCT1100	Business Law & Ethics	3
ACCT1106	Accounting Mathematics	3

First Year - Spring Semester		16 cr
ACCT1013	Principles of Financial Accounting II	4
ACCT1206	Payroll Accounting	2
ACCT1306	Spreadsheets	3
ACCT1406	Income Tax	4
COMS1020	Interpersonal Communication	3

Second Year - Fall Semester		14 cr
ACCT2000	Intermediate Accounting I	4
ACCT2110	Managerial Accounting I	4
ACCT2200	Accounting Computer Applications I	3
ENGL1150	Composition I	3

Second Year - Spring Semester		14 cr
ACCT2003	Intermediate Accounting II	4
ACCT2113	Managerial Accounting II	4
ACCT2206	Fund Non-Profit Accounting	3
	General Elective (MnTC Goal 3 *or* 4)	3

TOTAL PROGRAM REQUIREMENTS 54

ACCOUNTING CLERK
DIPLOMA

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

First Year – Fall Semester		16 cr
ACCT1010	Principles of Financial Accounting I 4	
ACCT1100	Business Law & Ethics 3	
ACCT1106	Accounting Mathematics 3	
	Technical Elective* 6	

First Year - Spring Semester		16 cr
ACCT1013	Principles of Financial Accounting II 4	
ACCT1206	Payroll Accounting 2	
ACCT1306	Spreadsheets 3	
ACCT1406	Income Tax 4	
ENGL1150	Composition I 3	

TOTAL PROGRAM REQUIREMENTS   32

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

SMALL BUSINESS ACCOUNTING
CERTIFICATE

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

First Year – Fall Semester		16 cr
ACCT1010	Principles of Financial Accounting I 4	
ACCT1206	Payroll Accounting 2	
ACCT1306	Spreadsheets 3	
ACCT2200	Accounting Computer Applications I 3	
	Technical Electives* 4	

TOTAL PROGRAM REQUIREMENTS   16

* Select Technical electives from ACCT1013, ACCT1406 or ACCT2110

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TECHNICAL COLLEGE

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BUSINESS

ADMINISTRATIVE SUPPORT

Delivery: Majority of courses are offered online; some daytime on campus courses are offered

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

AWARDS

Executive Administrative Specialist A.A.S. Degree. . . . . . . .60 cr.
Administrative Assistant Diploma . . . . 36 cr.
Microsoft Office Applications Management Certificate. . . . 18 cr.

MAJOR DESCRIPTION

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

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

WORK ENVIRONMENT

Graduates find employment in administrative support in a wide variety of businesses, including but not limited to 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

See latest data at careerwise.minnstate.edu.
• Average Wage: $33.78/hour
• Top Earners: $41.98/hour

ADDITIONAL INFORMATION

Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

Students will need access to the internet and a Windows PC computer able to use the current Microsoft Office suite and record audio and video. Depending on the computer, an external webcam, headset and microphone might be needed.

EXECUTIVE ADMINISTRATIVE SPECIALIST
A.A.S. DEGREE

First Year - Fall Semester		17 cr
ADMS1010	Business English Skills	2
ADMS1018	Basic Computer Applications	3
ADMS1020	Office Procedures	4
ADMS1021	Keyboarding/Formatting	2
COMS1020	Interpersonal Communication	3
	General Elective (any MnTC area)	3

First Year - Spring Semester		14 cr
ADMS1041	Certification Basics - Outlook	3
ADMS1290	Written Business Communication	2
ENGL1150	Composition I	3
	General Elective (any MnTC area)	3
	Technical Electives*	3

Second Year - Fall Semester		16 cr
ACCT1010	Principles of Financial Accounting I	4
ADMS1260	Certification Basics -Word	3
ADMS1265	Certification Basics - Excel	3
ADMS1285	Oral Business Communications & Job Seeking Skills	2
	Technical Electives*	4

Second Year - Spring Semester		13 cr
ADMS1022	Office Support Event Management	3
ADMS1040	Integrated Office Skills	3
ADMS1275	Certification Basics - PowerPoint	3
ADMS1445	Capstone	1
	General Elective (MnTC Goal 3 *or* 4)	3

TOTAL PROGRAM REQUIREMENTS 60

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

ADMINISTRATIVE ASSISTANT
DIPLOMA

First Year - Fall Semester		12 cr
ADMS1260	Certification Basics - Word	3
ADMS1018	Basic Computer Applications	3
ADMS1020	Office Procedures	4
ADMS1021	Keyboarding / Formatting	2

First Year - Spring Semester		14 cr
ADMS1022	Office Support Event Management	3
ADMS1040	Integrated Office Skills	3
ADMS1290	Written Business Communications	2
ADMS1041	Certification Basics - Outlook	3
ADMS1275	Certification Basics - PowerPoint	3

Second Year - Fall Semester		10 cr
ADMS1010	Business English Skills	2
ADMS1265	Certification Basics - Excel	3
ADMS1285	Oral Business Communications & Job Seeking Skills	2
COMS1020	Interpersonal Communication	3

TOTAL PROGRAM REQUIREMENTS 36

MICROSOFT OFFICE APPLICATIONS MANAGEMENT
CERTIFICATE

First Year - Fall Semester		9 cr
ADMS1018	Basic Computer Applications	3
ADMS1260	Certification Basics - Word	3
ADMS1265	Certification Basics - Excel	3

First Year - Spring Semester		9 cr
ADMS1040	Integrated Office Skills	3
ADMS1041	Certification Basics - Outlook	3
ADMS1275	Certification Basics - PowerPoint	3

TOTAL PROGRAM REQUIREMENTS 18

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BUSINESS

BUSINESS ADMINISTRATION

Delivery: Fully online or on campus during the evening

Start: Fall, Spring or Summer Session, Full- or Part-Time
This program also has a late Fall and Spring start

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

MAJOR DESCRIPTION
This program provides essential knowledge, skills and abilities that can be applied to the ever changing and highly competitive world of business. In this multidisciplinary degree, students understand business from management, financial and marketing perspectives.

The Business Administration A.S. offers students the opportunity to complete an Associate of Science degree and then transfer to designated bachelor's degree programs at a number of universities. Work with an advisor for transfer planning.

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

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

- Small Business Management
- Office Manager
- Non-profit Director
- Front Line Supervisor
- Project Manager

SALARY DATA
See latest data at onetonline.org.

- Average Wage: $39.22/hour
- Top Earners: $63.88/hour

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

BUSINESS ADMINISTRATION
A.S. DEGREE

First Year - Fall Semester		15 cr
ADMS1018	Basic Computer Applications	3
BUSN1000	Foundations of Management	3
BUSN1320	Managing Diversity	3
COMS1020	Interpersonal Communication	3
ENGL1150	Composition I	3

First Year - Spring Semester		15 cr
BUSN1110	Business Law & Ethics	3
BUSN1210	Project Management	3
ECON1100	Microeconomics	3
	General Elective (Goal 3) *BIOL1110 recommended*	3
	Technical Electives (from BUSN)	3

Second Year - Fall Semester		14 cr
ACCT1010	Principles of Financial Accounting I	4
COMS1015	Fundamentals of Public Speaking	3
MATS1300	College Algebra	4
MKTC1000	Principles of Marketing	3

Second Year - Spring Semester		16 cr
ACCT2110	Managerial Accounting I	4
BUSN2010 BUSN2970	Graduation Project *or* Internship	1
ECON1200	Macroeconomics	3
MATS1251	Statistics	4
	General Electives (Goal 2, 6, 8, 9, *or* 10)	4

TOTAL PROGRAM REQUIREMENTS   60

DAKOTA COUNTY
TECHNICAL COLLEGE

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BUSINESS

BUSINESS MANAGEMENT

Delivery: Fully online or on campus during the evening

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

AWARDS

Business Management A.A.S. Degree .60 cr.
Multicultural Human Resources Management Diploma . . . . 33 cr.
Multicultural Leadership Diploma. . . . . 33 cr.
Multicultural Quality Management Diploma. . . . . 33 cr.
Human Resource Management Certificate. . . . . 17 cr.
Multicultural Supervision Certificate . . . . 17 cr.
Quality Improvement Certificate . . . . 17 cr.
Supervisory Leadership Certificate . . . . 17 cr.

MAJOR DESCRIPTION

This program provides working adults with the essential knowledge, skills and abilities to succeed in today's increasingly competitive business environment. Students acquire the competencies that can be universally applied to global and local organizations in the profit, non-profit and public sectors. Students can individualize their degree by selecting a technical path. Certificates may be combined to earn diplomas.

- Human Resource Management Certificate
- Multicultural Supervision Certificate
- Quality Improvement Certificate
- Multicultural Leadership Diploma
- Multicultural Human Resources Management Diploma
- Multicultural Quality Management Diploma

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 Resource Specialist/Manager
- Quality Specialist
- Event Manager

SALARY DATA

See latest data at careerwise.minnstate.edu.

- Average Wage: $31.47/hour
- Top Earners: $39.51/hour

ADDITIONAL INFORMATION

Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

BUSINESS MANAGEMENT
A.A.S. DEGREE

Required Curriculum		14 cr
Supervisory Leadership Certificate - Required		
BUSN1000	Foundations of Management	3
BUSN1010	Leadership	3
BUSN1020	Management Effectiveness	3
BUSN1030	Financial Management	2
BUSN1040	Organizational Behavior	3

Technical Paths	28 cr
Select two of the following three certificates:	
Human Resources Management Certificate	14
Multicultural Supervision Certificate	14
Quality Improvement Certificate	14

Graduation Project or Internship		1-6* cr
Choose one of the following:		
BUSN2010	Graduation Project**	1-6
BUSN2970	Internship**	1-3

General Education		15 cr
COMS1020	Interpersonal Communication	3
ENGL1150	Composition I	3
	General Elective (MnTC Goal 3 *or* 4)	3
	General Electives (any MnTC area)	6

TOTAL PROGRAM REQUIREMENTS   60

* Total degree credits must equal 60 credits

** Graduation Project/Internship registration is in the last semester of attendance. Credits vary based on your certificate and diploma choices. You must have advisor approval to ensure you have enough credits to graduate.

MULTICULTURAL
HUMAN RESOURCES MANAGEMENT
DIPLOMA

This diploma provides students, of all cultural backgrounds, opportunities to meaningfully engaging in a transformational process, acquiring cultural fluency and intentionally developing multicultural awareness, knowledge, skills and abilities. Graduates of this program learn about the appropriate interventions, tools and techniques to better navigate the ever-changing work environment of human resources management.

This diploma is a combination of Multicultural Supervision Certificate, Human Resource Management Certificate and BUSN1030.

Required Curriculum		30 cr
BUSN1030	Financial Management	2
BUSN1121	Employee & Labor Relations	3
BUSN1101	Workforce Planning	4
BUSN1130	Risk Management	2
BUSN1141	Human Resource Development	3
BUSN1150	Compensation & Benefits	2
BUSN1320	Managing Diversity	3
BUSN1330	Leading a Multicultural Workforce	3
BUSN1300	Multicultural Mentoring I	2
BUSN1310	Multicultural Mentoring II	1
BUSN1350	Multicultural Conflict Resolution	2
BUSN1340	International Business	3

General Education		3 cr
COMS1020	Interpersonal Communication	3

TOTAL PROGRAM REQUIREMENTS   33

MULTICULTURAL LEADERSHIP
DIPLOMA

This diploma provides students, of all cultural backgrounds, opportunities to meaningfully engaging in a transformational process, acquiring cultural fluency and intentionally developing multicultural awareness, knowledge, skills and abilities. Graduates of this program apply interventions, tools and techniques to enhance continuous improvement practices in highly diverse organizational environments across private, public and non-profit sectors.

This Diploma is a combination of Multicultural Supervision Certificate, Supervisory Leadership Certificate, and BUSN1160.

Required Curriculum		30 cr
BUSN1000	Foundations of Management	3
BUSN1010	Leadership	3
BUSN1020	Management Effectiveness	3
BUSN1030	Financial Management	2
BUSN1040	Organizational Behavior	3
BUSN1160	Human Resource Essentials	2
BUSN1300	Multicultural Mentoring I	2
BUSN1310	Multicultural Mentoring II	1
BUSN1320	Managing Diversity	3
BUSN1330	Leading a Multicultural Workforce	3
BUSN1340	International Business	3
BUSN1350	Multicultural Conflict Resolution	2

General Education		3 cr
COMS1020	Interpersonal Communication	3

TOTAL PROGRAM REQUIREMENTS   33

MULTICULTURAL QUALITY MANAGEMENT
DIPLOMA

This program provides students, of all cultural backgrounds, opportunities to meaningfully engaging in a transformational process, acquiring cultural fluency and intentionally developing multicultural awareness, knowledge, skills and abilities. Graduates of this program apply the appropriate interventions, tools and techniques to better navigate the ever-changing work environment in the operations, quality and project management fields.

This Diploma is a combination of Multicultural Supervision Certificate, Quality Improvement Certificate, BUSN 1030 and BUSN1160.

Required Curriculum		30 cr
BUSN1030	Financial Management	2
BUSN1160	Human Resource Essentials	2
BUSN1200	Quality Management	3
BUSN1210	Project Management	3
BUSN1220	Effective Business Communication	3
BUSN1240	Creativity and Problem Solving	2
BUSN1260	Managing Customer Service	1
BUSN1300	Multicultural Mentoring I	2
BUSN1310	Multicultural Mentoring II	1
BUSN1320	Managing Diversity	3
BUSN1330	Leading a Multicultural Workforce	3
BUSN1340	International Business	3
BUSN1350	Multicultural Conflict Resolution	2

General Education		3 cr
ENGL1150	Composition I	3

TOTAL PROGRAM REQUIREMENTS   33

HUMAN RESOURCE MANAGEMENT
CERTIFICATE

This certificate is designed for supervisors and managers, as well as students interested in a career is Human Resources. Legal and ethical aspects of leading a business to ensure the organization is maximizing their human resources. Areas focused on are integrating Diversity, Equity and Inclusion and examining traditional HR practices such as safety and wellness, recruitment & hiring the right employees, providing essential training, managing employee performance and recognition and reward programs from a operational and strategic perspective. The certificate also prepares you for various human resource certifications.

Required Curriculum		14 cr
BUSN1121	Employee & Labor Relations	3
BUSN1101	Workforce Planning	4
BUSN1130	Risk Management	2
BUSN1141	Human Resource Development	3
BUSN1150	Compensation & Benefits	2

General Education		3 cr
COMS1020	Interpersonal Communication	3

TOTAL PROGRAM REQUIREMENTS 17

QUALITY IMPROVEMENT
CERTIFICATE

This certificate program prepares students to understand quality management best practices to create the conditions for effective continuous improvement. Students acquire project management knowledge, skills abilities focusing on enhancing quality systemically from the suppliers through input, process, outputs delivered to the customer. Students obtained knowledge, skills and abilities to lead quality initiatives across sectors with emphasis on customer service and manufacturing fields.

Required Curriculum		14 cr
BUSN1200	Quality Management	3
BUSN1210	Project Management	3
BUSN1220	Effective Business Communication	3
BUSN1240	Creativity and Problem Solving	2
BUSN1260	Managing Customer Service	1
BUSN1350	Multicultural Conflict Resolution	2

General Education		3 cr
ENGL1150	Composition I	3

TOTAL PROGRAM REQUIREMENTS 17

MULTICULTURAL SUPERVISION
CERTIFICATE

Students in this certificate program develop multicultural supervision competencies focusing on acquiring new multicultural awareness, knowledge, skills and abilities. The program focuses on increasing the awareness to create a positive personal, team and organizational impact by applying diversity, equity and inclusion best practices. A major emphasis is on applying leadership development to enhance creativity and innovation in highly diverse organizations in either private, public or non-profit sectors.

Required Curriculum		14 cr
BUSN1300	Multicultural Mentoring I	2
BUSN1310	Multicultural Mentoring II	1
BUSN1320	Managing Diversity	3
BUSN1330	Leading a Multicultural Workforce	3
BUSN1340	International Business	3
BUSN1350	Multicultural Conflict Resolution	2

General Education		3 cr
	General Elective (any MnTC area)	3

TOTAL PROGRAM REQUIREMENTS 17

SUPERVISORY LEADERSHIP
CERTIFICATE

Required Curriculum		14 cr
BUSN1000	Foundations of Management	3
BUSN1010	Leadership	3
BUSN1020	Management Effectiveness	3
BUSN1030	Financial Management	2
BUSN1040	Organizational Behavior	3

General Education		3 cr
	General Elective (any MnTC area)	3

TOTAL PROGRAM REQUIREMENTS 17

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BUSINESS

DIGITAL MARKETING SPECIALIST

Delivery: Fully online

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

AWARDS
Digital Marketing Specialist A.A.S. Degree. . . . . .60 cr.
Sales Specialist Certificate. . . . . 16 cr.

MAJOR DESCRIPTION
Digital Marketing Specialist A.A.S. Degree: Digital marketing is using the right techniques to allow a marketer to promote in a digital world. While the basics of marketing still apply, digital marketing isn't just another new channel for marketing. It's a refreshingly new approach to marketing which offers a unique understanding of consumer behavior through a digital world. Today's marketers must be well versed in social media, mobile marketing, analytics and more. Whether you are a recent graduate, accomplished marketing professional or looking to change careers, this program will provide you with the knowledge and skills to advance your career. You will learn a solid foundation of basic marketing concepts while obtaining a solid grasp of digital marketing management and strategies. This program combines theory with practical real-world experience.

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

AWARDS
The Marketing program at DCTC is ranked #3 nationally on 20 Best Online Associates in Marketing Degree Programs by Best Marketing Degrees (BMD).

The Principles of Marketing course (MKTC 1000) has earned the Quality Matters (QM) Certification Mark following a rigorous review process.

WORK ENVIRONMENT
A digital marketing specialist oversees the implementation of different digital media programs for clients. You need writing skills for creating content, as you may be assigned to blogging or other writing for potential clients. You will be expected to have quick turn-around on projects and be a multi-tasker. You must thrive in an entrepreneurial setting, be able to accomplish tasks on your own, or as part of a team. You must be a self-starter and have strong project management skills. You need to be flexible and be able to adapt to the constant changes occurring in digital platforms, devices, and apps.

A sales professional needs to be goal-oriented and organized in a fast-paced environment, working in business-to-business sales and business-to-consumer sales. The day-to-day responsibilities of a sales representative can vary as significantly as the products and service the professional sells. They may work in an office, at home or while traveling for business. Sales reps need to commit to working hard and update themselves with evolving industry knowledge to gain new customers, retain them and be successful in sales.

POTENTIAL JOB TITLES
- Account Executive
- Content Strategist
- Content Writer
- Digital Brand Manager
- Digital Marketing Specialist
- Marketing Consultant
- Marketing Data Analyst
- Regional Sales Manager
- Sales Director
- Sales Representative
- SEO Specialist
- Social Media Specialist

SALARY DATA
See latest data at careerwise.minnstate.edu.
- Average Wage: $38.19/hour
- Top Earners: $60.31/hour

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

Students will need access to the internet and a computer that can run Windows 10 or newer and is able to record audio and video. Depending on the computer, an external webcam, headset and microphone might be needed.

DIGITAL MARKETING SPECIALIST
A.A.S. DEGREE

First Year - Fall Semester		15 cr
MKTC1000	Principles of Marketing	3
MKTC1100	Fundamentals of Sales	3
MKTC2506	Digital Marketing	3
MKTC2515	Digital SEM and Analytics	3
COMS1020	Interpersonal Communication	3

First Year - Spring Semester		15 cr
ENGL1150	Composition I	3
MKTC1150	Consumer & Professional Buying Behavior	3
MKTC2000	Advertising Practices & Procedures	3
MKTC2507	Digital Media Tools	3
MKTC2815	Business Law	3

Second Year - Fall Semester		14 cr
MKTC2105	Marketing Communications Writing	3
MKTC2511	Web Development for Marketers	3
MKTC2520	Video Content for Marketers	2
MKTC2600	Marketing Research	3
	General Elective (MnTC Goal 3 *or* 4)	3

Second Year - Spring Semester		16 cr
MKTC2550	International Marketing	3
MKTC2605	Data Analytics	3
MKTC2900	Portfolio & Interviewing	1
MKTC2970	Marketing Internship	3
	General Electives (any MnTC area)	6

TOTAL PROGRAM REQUIREMENTS 60

SALES SPECIALIST
CERTIFICATE

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

First Year - Fall Semester		9 cr
BUSN1000	Foundations of Management	3
MKTC1000	Principles of Marketing	3
MKTC2506	Digital Marketing	3

First Year - Spring Semester		7 cr
MKTC1150	Consumer and Professional Buying Behavior	3
MKTC1100	Fundamentals of Sales	3
MKTC2900	Portfolio and Interviewing	1

TOTAL PROGRAM REQUIREMENTS 16

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BUSINESS

LEGAL ADMINISTRATIVE ASSISTANT

Delivery: Majority of courses are offered online; some daytime on campus courses are offered

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

AWARDS
Legal Administrative Assistant A.A.S. Degree . . . . 60 cr.
Legal Administrative Assistant Diploma . . . . 41 cr.

MAJOR DESCRIPTION
This program prepares students to work in a variety of law-related fields. Specialized legal courses include Civil Procedures, Civil Litigation, and Estate, Probate, and Real Estate. Students also take a variety of general administrative courses covering software applications, keyboarding and communications. This program teaches the expertise needed for creating and editing documents, spreadsheets, databases, electronic presentations and Internet navigation research. Legal Administrative Assistants may be called upon to communicate, organize, coordinate, and integrate data.

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

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

POTENTIAL JOB TITLES
• Legal Administrative Assistant
• Law Secretary
• Legal Secretary

SALARY DATA
See latest data at careerwise.minnstate.edu.
• Average Wage: $31.15/hour
• Top Earners: $39.02/hour

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

Students will need access to the internet and a Windows PC computer able to use the current Microsoft Office suite and record audio and video. Depending on the computer, an external webcam, headset and microphone might be needed.

LEGAL ADMINISTRATIVE ASSISTANT
A.A.S. DEGREE

This is a suggested sample course sequence for a full-time student. All courses are not offered every semester. Please contact your program advisor regarding your academic plans.

First Year - Fall Semester		17 cr
ADMS1010	Business English Skills	2
ADMS1018	Basic Computer Applications	3
ADMS1020	Office Procedures	4
ADMS1021	Keyboarding / Formatting	2
COMS1020	Interpersonal Communication	3
	General Elective (any MnTC area)	3

First Year - Spring Semester		16 cr
ADMS1041	Certification Basics - Outlook	3
ADMS1290	Written Business Communications	2
ENGL1150	Composition I	3
LEGL1602	Civil Litigation †	4
LEGL1603	Civil Procedures, Business Organization, and Family Law †	4

Second Year - Fall Semester		14 cr
ADMS1260	Certification Basics - Word	3
ADMS1265	Certification Basics - Excel	3
ADMS1285	Oral Business Communications & Job Seeking Skills . .	2
	General Elective (any MnTC area)	3
	General Elective (MnTC Goal 3 *or* 4)	3

Second Year - Spring Semester		13 cr
ADMS1022	Office Support Event Management	3
ADMS1040	Integrated Office Skills	3
ADMS1275	Certification Basics - PowerPoint	3
ADMS1445	Capstone	1
LEGL1614	Estate, Probate, and Real Estate †	3

TOTAL PROGRAM REQUIREMENTS 60

† Online course offered by Alexandria Community and Technical College

LEGAL ADMINISTRATIVE ASSISTANT
DIPLOMA

This is a suggested sample course sequence for a full-time student. All courses are not offered every semester. Please contact your program advisor regarding your academic plans.

First Year - Fall Semester — 11 cr

ADMS1010	Business English Skills	2
ADMS1018	Basic Computer Applications	3
ADMS1020	Office Procedures	4
ADMS1021	Keyboarding/Formatting	2

First Year - Spring Semester — 12 cr

ADMS1022	Office Support Event Management	3
ADMS1041	Certification Basics - Outlook	3
ADMS1290	Written Business Communications	2
LEGL1602	Civil Litigation †	4

Second Year - Fall Semester — 8 cr

ADMS1260	Certification Basics - Word	3
ADMS1265	Certification Basics - Excel	3
ADMS1285	Oral Business Communications & Job Seeking Skills	2

Second Year - Spring Semester — 10 cr

ADMS1040	Integrated Office Skills	3
ADMS1275	Certification Basics - PowerPoint	3
LEGL1603	Criminal Procedures, Business Organization, and Family Law †	4

TOTAL PROGRAM REQUIREMENTS   41

† *Online course offered by Alexandria Community and Technical College.*

DAKOTA COUNTY
TECHNICAL COLLEGE

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BUSINESS

MARKETING

Delivery: Fully online

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

AWARDS

Marketing A.S. Degree . . . . .60 cr.

MAJOR DESCRIPTION

Marketing professionals use their attention to detail and communication skills to create marketing messages that address their customer needs through various communication methods. Marketers develop strategies to benefit both internal audiences and external customers. Their ability to work in fast-paced environment, deadline-oriented environments is due to marketers being independent thinkers. This program provides knowledge of all general marketing concepts, along with managing projects, determining strategies to reach markets, coordinating the distribution of products, planning advertising and promotional campaigns, creating digital strategies to establish a strong web presence, analyzing data, and researching to assist in market planning.

AWARDS

The Marketing program at DCTC is ranked #3 nationally on 20 Best Online Associates in Marketing Degree Programs by Best Marketing Degrees (BMD).

The Principles of Marketing course (MKTC 1000) has earned the Quality Matters (QM) Certification Mark following a rigorous review process.

WORK ENVIRONMENT

Often a key department to the success of any business, marketing professionals work to develop strategies to meet the overall goals of the organization. Marketers can have creative or project management positions within a department. Professionals tend to work under deadlines set from managers, vendors or themselves. The role of a marketer can encompass creative, analytical, digital and administrative responsibilities which vary depending on the type and size of their employer. Travel or relocation can be part of the job. However, improved technology continues to increase telecommuting from home offices.

POTENTIAL JOB TITLES

• Advertising Specialist
• Brand Specialist
• Content Marketer
• Data Analyst
• Digital Marketer
• Global Sales Specialist
• Media Planner
• Marketing Analyst
• Marketing Project Manager

SALARY DATA

See latest data at careerwise.minnstate.edu.
• Average Wage: $38.19/hour
• Top Earners: $60.31/hour

ADDITIONAL INFORMATION

Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

Students will need access to the internet and a computer that can run Windows 10 and is able to record audio and video. Depending on the computer, an external webcam, headset and microphone might be needed.

MARKETING
A.S. DEGREE

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

First Year - Fall Semester   15

MKTC1000	Principles of Marketing	3
MKTC1100	Fundamentals of Sales	3
MKTC2105	Marketing Communications Writing	3
COMS1020	Interpersonal Communication	3
ENGL1150	Composition I	3

First Year - Spring Semester   16

MKTC1150	Consumer & Professional Buying Behavior	3
MKTC2000	Advertising Practices & Procedures	3
MATS1300	College Algebra	4
	General Elective (MnTC Goal 3)	3
	General Elective (any MnTC area)	3

Second Year – Fall Semester   16

MKTC2506	Digital Marketing	3
MKTC2600	Marketing Research	3
MKTC2815	Business Law	3
ECON1100	Microeconomics	3
MATS1251	Statistics	4

Second Year – Spring Semester   13

MKTC2550	International Marketing	3
MKTC2605	Data Analytics	3
ECON1200	Macroeconomics	3
	General Electives (any MnTC area)	4

TOTAL PROGRAM REQUIREMENTS   60

DAKOTA COUNTY
TECHNICAL COLLEGE

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BUSINESS

MEDICAL ADMINISTRATIVE SPECIALIST

Delivery: Majority of courses are offered online; some daytime on campus courses are offered

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

AWARDS

Medical Administrative Specialist A.A.S. Degree . . . . .60 cr.
Medical Administrative Specialist Diploma . . . . .44 cr.

MAJOR DESCRIPTION

This program prepares students to work in a variety of positions in the medical field. Some of the specialized medical courses include medical documentation, medical terminology, and anatomy and physiology.

Students also take a variety of general administrative courses covering software applications, keyboarding and communications. This program teaches the expertise needed for creating and editing documents, spreadsheets, databases, electronic presentations and Internet navigation research. Medical Administrative Assistants may be called upon to communicate, organize, coordinate, and integrate data.

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

WORK ENVIRONMENT

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

POTENTIAL JOB TITLES

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

SALARY DATA

See latest data at careerwise.minnstate.edu.

• Average Wage: $22.57/hour
• Top Earners: $29.71/hour

ADDITIONAL INFORMATION

Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

Students will need access to the internet and a Windows PC computer able to use the current Microsoft Office suite and record audio and video. Depending on the computer, an external webcam, headset and microphone might be needed.

MEDICAL ADMINISTRATIVE SPECIALIST
A.A.S. DEGREE

This is a suggested sample course sequence for a full-time student. All courses are not offered every semester. Please contact your program advisor regarding your academic plans.

First Year - Fall Semester		13 cr
ADMS1018	Basic Computer Applications	3
ADMS1020	Office Procedures	4
ADMS1021	Keyboarding/Formatting	2
HEAL1502	Medical Terminology	2
MDAS1151	Health Care Essentials	2

First Year - Spring Semester		18 cr
ADMS1022	Office Support Event Management	3
ADMS1041	Certification Basics - Outlook	3
ADMS1290	Written Business Communication	2
ENGL1150	Composition I	3
HEAL1101	Anatomy & Physiology	4
MDAS1271	Administrative Procedures	3

Second Year - Fall Semester		16 cr
ADMS1010	Business English Skills	2
ADMS1265	Certification Basics - Excel	3
ADMS1260	Certification Basics - Word	3
ADMS1275	Certification Basics - PowerPoint	3
ADMS1285	Oral Business Communications & Job Seeking Skills	2
COMS1020	Interpersonal Communication	3

Second Year - Spring Semester		13 cr
ADMS1040	Integrated Office Skills	3
ADMS1445	Capstone	1
	General Elective (MnTC Goal 3 *or* 4)	3
	General Electives (any MnTC area)	6

TOTAL PROGRAM REQUIREMENTS 60

MEDICAL ADMINISTRATIVE SPECIALIST
DIPLOMA

This is a suggested sample course sequence for a full-time student. All courses are not offered every semester. Please contact your program advisor regarding your academic plans.

First Year - Fall Semester		13 cr
ADMS1018	Basic Computer Applications	3
ADMS1020	Office Procedures	4
ADMS1021	Keyboarding/Formatting	2
HEAL1502	Medical Terminology	2
MDAS1151	Health Care Essentials	2

First Year - Spring Semester		18 cr
ADMS1022	Office Support Event Management	3
ADMS1041	Certification Basics - Outlook	3
ADMS1290	Written Business Communication	2
ADMS1040	Integrated Office Skills	3
HEAL1101	Anatomy & Physiology	4
MDAS1271	Administrative Procedures	3

Second Year - Fall Semester		13 cr
ADMS1010	Business English Skills	2
ADMS1265	Certification Basics - Excel	3
ADMS1260	Certification Basics - Word	3
ADMS1275	Certification Basics - PowerPoint	3
ADMS1285	Oral Business Communications & Job Seeking Skills	2

TOTAL PROGRAM REQUIREMENTS 44

DAKOTA COUNTY
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BUSINESS

PUBLIC ADMINISTRATION

Delivery: Fully online

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

AWARDS
Public Administration Certificate . . . . 21 cr.

MAJOR DESCRIPTION
Public Administration is the fulfillment of public policy and general welfare for the communities served. This certificate is designed to prepare you for a career in a wide range of supervisory and leadership roles found in the ever changing and diverse environment of the public sector. This certificate can be combined with other management courses to earn a degree in Technical Management.

WORK ENVIRONMENT
Graduates with this training are prepared for leadership positions in government agencies, and organizations in the public, private and nonprofit sectors.

POTENTIAL JOB TITLES
- Recreation Program Coordinator
- Utilities Lead Worker
- Office Support Supervisor
- Deputy City Clerk
- Guest Services Supervisor

SALARY DATA
Salary information varies widely due to the type of organization, size and scope (non-profit, township, city, county, state and federal agencies).

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

PUBLIC ADMINISTRATION
CERTIFICATE

First Year - Fall Semester		9
BUSN1031	Finance for Public and Private Sector Management	3
BUSN1320	Managing Diversity	3
BUSN1600	Introduction to Public Administration	3

First Year - Spring Semester		12
BUSN1121	Employee and Labor Relations	3
BUSN1210	Project Management	3
BUSN1602	Public Administration: Organizational, Managerial and Legal	3
BUSN2970	Internship	3

TOTAL PROGRAM REQUIREMENTS 21

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BUSINESS

SMALL BUSINESS ENTREPRENEURSHIP

Delivery: Fully online

Start: Fall or Spring Semester

AWARDS
Business Entrepreneur Certificate . . . . 16 cr.

MAJOR DESCRIPTION
This program teaches small business management skills along with all the necessary knowledge and skill sets to start and grow a new small business. The programs central core is the planning of a small business to ensure that the business has the best possible chance of succeeding. The certificate can stand alone for individuals with existing skills or complement a variety of existing technical programs.

WORK ENVIRONMENT
Small business owners and entrepreneurs compete in a vast range of business enterprises. Because they are self-employed, small business owners need a broad base of business skills, including marketing, sales, financial accountability and business planning.

POTENTIAL JOB TITLES
For small business owners and entrepreneurs, titles are usually not a primary concern. Most self-employed people focus on what they do rather than what they're called. If a title is needed, the word "owner" is most often used by self-employed people.

SALARY DATA
See latest data at ziprecruiter.com/Salaries/How-Much-Does-a-Small-Business-Owner-Make-a-Year--in-Minnesota.

Annual salaries of small business owners and entrepreneurs diverge dramatically due to an immense variety of factors. The biggest factor is if the business is full- or part-time.

• Average salary (U.S.): $101,654/year

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

SMALL BUSINESS ENTREPRENEUR
CERTIFICATE

Required Curriculum		16 cr
BUSN1110	Business Law and Ethics.	3
ENTR1170	Introduction to Small Business	2
ENTR1760	Selling and Negotiating for Small Business Owners.	3
ENTR1860	Business Plan Development.	3
ENTR1920	Capitalizing & Financial Management for Small Business.	2
MKTC1000	Principles of Marketing	3

TOTAL PROGRAM REQUIREMENTS **16**

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BUSINESS

TECHNICAL MANAGEMENT

Delivery: Fully online or on campus during the evening

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

AWARDS
Technical Management A.A.S. Degree. . . . . .60 cr.

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

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

POTENTIAL JOB TITLES
• Production Supervisor
• Manager
• Facility Manager
• Line Supervisor
• Maintenance Manager
• Manufacturing Supervisor
• Quality Manager
• Human Resources Manager

SALARY DATA
See latest data at careerwise.minnstate.edu.
• Average Wage: $31.47/hour
• Top Earners: $39.51/hour

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

TECHNICAL MANAGEMENT
A.A.S. DEGREE

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

Required Curriculum		45 cr
BUSN2010	Graduation Project (*or* BUSN2970 Internship) 1	
	Technical Electives* *or* Prior Learning Credits 30	
	Technical Electives* (any BUSN) 14	

General Education		15 cr
COMS1020	Interpersonal Communication. 3	
ENGL1150	Composition I. 3	
	General Elective (MnTC Goal 3 *or* 4). 3	
	General Electives (any MnTC area) 6	

TOTAL PROGRAM REQUIREMENTS 60

* *The Technical Management program offers the opportunity to take specific courses of interest or to earn an A.A.S. degree with one or more certificates in:*
  • *Supervisory Leadership*
  • *Quality Improvement*
  • *Human Resource Management*
  • *Multicultural Supervision*
  • *Public Administration*

DAKOTA COUNTY
TECHNICAL COLLEGE

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CONSTRUCTION & MANUFACTURING

PROGRAMS OF STUDY

Architectural Technology

Brewing & Beer Steward Technology

Civil Engineering Technology

Construction Management

Electrical Construction & Maintenance

Electrical Lineworker

HVAC & Refrigeration Technology

Industrial Engineering Technician

Interior Design

Welding Technology

POWER UP

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

Our Construction & Manufacturing programs offer a range of choices for students searching for their place in a technological world.

TRAITS OF THE TRADE

The best technicians share these essential qualities:

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

Unless otherwise specified, salary data is sourced from careerwise.minnstate.edu.

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CONSTRUCTION & MANUFACTURING

ARCHITECTURAL TECHNOLOGY

Delivery: Daytime Classes

Start: Fall Semester, Full-Time

AWARDS
Architectural Technology A.A.S. Degree . . . . 60 cr.
Architectural Drafting Certificate . . . . 12 cr.

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

Drafting Certificate: Our certificate is offered as a way for PSEO students to begin working toward a degree while still in High School. It is also beneficial for industry professionals who are looking to update their drafting skills to current industry software and standards.

WORK ENVIRONMENT
Graduates of this program find employment in many related areas: architectural firms and professional design offices, construction, engineering, 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
- Architectural Designer

SALARY DATA
See latest data at careerwise.minnstate.edu.
- Average Wage: $31.55/hour
- Top Earners: $42.58/hour

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

Students in the A.A.S. degree are provided a laptop for this program, and an associated fee is charged each semester for software and hardware cost. The laptop includes all software required for the program, in line with professional trends and all associated updates. Upon successful completion of all four semesters, students may keep the laptop as their own.

Students in the certificate program must have access to a Windows PC that is compatible with the most up-to-date requirements for both Autodesk AutoCAD and Autodesk Revit. Current System Requirements for this computer can be found on the Autodesk website.

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ARCHITECTURAL TECHNOLOGY
A.A.S. DEGREE

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

First Year - Fall Semester		14 cr
ARCT1000	Architectural Technology Studio I	5
ARCT1020	Methods and Materials I	3
ARCT1108	Computer Drafting I	3
	General Elective (MnTC Goal 3) *BIOL1110 recommended*	3

First Year - Spring Semester		17 cr
ARCT1208	Computer Drafting II	3
ARCT1500	Architectural Technology Studio II	5
ARCT1540	Methods and Materials II	3
ARCT2020	Building Structures.	3
ARTS1310	History of Architecture	3

Second Year - Fall Semester		14 cr
ARCT1520	Building Codes and Regulations.	3
ARCT2000	Mechanical and Electrical Systems	3
ARCT2101	Architectural Technology Studio III	5
ARCT2108	Computer Drafting III	3

Second Year - Spring Semester		15 cr
ARCT2200	Architectural Studio IV	5
ARCT2970	Internship	1
COMS1020	Interpersonal Communications	3
ENGL1150	Composition I	3
	General Elective (MnTC Goal 6) *ARTS1301 or PHIL1460 recommended*	3

TOTAL PROGRAM REQUIREMENTS   60

ARCHITECTURAL DRAFTING*
CERTIFICATE

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

First Year - Fall Semester		12 cr
ARCT1020	Methods and Materials I	3
ARCT1108	Computer Drafting I	3
ARCT1208	Computer Drafting II	3
ARCT1540	Methods and Materials II.	3

TOTAL PROGRAM REQUIREMENTS   12

*This program not eligible for financial aid

DAKOTA COUNTY
TECHNICAL COLLEGE

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CONSTRUCTION & MANUFACTURING

BREWING & BEER STEWARD TECHNOLOGY

Delivery: Daytime Saturdays

Start: Fall Semester, Full-Time

AWARDS

Brewing & Beer Steward Technology Certificate . . . . 21 cr.

MAJOR DESCRIPTION

This interdisciplinary program is designed to prepare students for brewing beer, cellar operations, and other professional positions in the commercial brewery or brewpub industry. The program is also designed to provide the knowledge for those interested in the position of beer steward. The program is intended to provide an overview of all aspects of brewing, technical skills and knowledge to select raw materials, production, process management, beer care, beer service, and beer styles using food pairings. In addition, the program is designed to provide operations management, marketing and distribution, and financial management for breweries. Overall, the program will provide students with a solid understanding of brewing science, engineering, management, and service.

WORK ENVIRONMENT

Brewing and Beer Steward graduates will set up, operate, and tend brewing equipment; control, adjust, and regulate conditions such as material flow, temperature, and pressure. They will also validate the qualities such as clarity, cleanness, consistency, and maintaining logs on instrument readings and test results and the cleaning and sterilizing of brewery equipment.

POTENTIAL JOB TITLES
- Brewer/Cellar Operator
- Brewing/Blender Operator
- Brewery Maintenance Technician
- Cellar Worker
- Plant Operator
- Technical Brewer
- Lead Brewer
- Shift/Assistant Brewer
- Quality Control/Lab Technician
- Packaging Operator

SALARY DATA
See latest data at onetonline.org.
- Average Wage: $22.47/hour

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

BREWING & BEER STEWARD TECHNOLOGY
CERTIFICATE

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

First Year - Fall Semester	10 cr
BREW1000 Introduction to Brewing & Beer Steward Technology 2	
BREW1100 Science of Brewing & Fermentation 4	
BREW1200 Raw Materials & Brewing Process 4	

First Year - Spring Semester	11 cr
BREW1300 Beer Production & Quality Control 4	
BREW1400 Packaging & Process Technology 3	
BREW2970 Internship. 4	

TOTAL PROGRAM CREDITS **21**

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DAKOTA COUNTY
TECHNICAL COLLEGE

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CONSTRUCTION & MANUFACTURING

CIVIL ENGINEERING TECHNOLOGY

Delivery: On campus afternoon classes

Start: Fall Semester, Full-Time

AWARDS
Civil Engineering & Land Survey Technology A.A.S. Degree . . .60 cr.
Civil Engineering & Land Survey Technology Certificate. . . . . . .30 cr.

MAJOR DESCRIPTION
This program incorporates state-of-the-art equipment and software programs in its labs. Working in a diverse field with excellent employment opportunities nationwide, graduates will be involved in all aspects of the construction process including the planning and design as well as project management and inspections of roads, bridges, highways, subdivisions, and conventional energy plants, including wind farms.

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

POTENTIAL JOB TITLES
• Civil Engineering Technician
• Civil Engineering Designer
• Surveyor

SALARY DATA
See latest data at careerwise.minnstate.edu.
• Average Wage: $35.96/hour
• Top Earners: $47.08/hour

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

CIVIL ENGINEERING & LAND SURVEY TECHNOLOGY
A.A.S. DEGREE

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

First Year - Fall Semester		15 cr
CIVL1131	Beginning Surveying	5
CIVL1151	Basic CAD	5
CIVL1251	Soil Mechanics Survey/Materials Testing	3
	General Elective (any MnTC area) *INDS1020 recommended*	2

First Year - Spring Semester		17 cr
CIVL1222	Civil Engineering Technology Drafting	4
CIVL1231	Intermediate Surveying & GPS	5
CIVL1242	Construction Surveying	2
CIVL1256	Hydrology	1
CIVL1257	UAV/Drone Photogrammetry	1
MATS1340	Math for Engineering Technology	4

Second Year - Fall Semester		15 cr
CIVL2121	Construction Inspection & Project Management	4
CIVL2132	Land Survey	3
CIVL2133	Subdivision Plat Drafting	1
CIVL2155	Eco-Sensitive Design	1
CIVL2970	Internship	3
	General Elective (any MnTC area)	3

Second Year - Spring Semester		13 cr
CIVL2211	Project Design	3
CIVL2221	Properties of Construction Materials	2
CIVL2241	Estimating	2
COMS1020	Interpersonal Communication	3
ENGL1150	Composition I	3

TOTAL PROGRAM CREDITS 60

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CIVIL ENGINEERING &
LAND SURVEY TECHNOLOGY
CERTIFICATE

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

First Year - Fall Semester		17 cr
CIVL1131	Beginning Surveying	5
CIVL1151	Basic CAD	5
CIVL1251	Soil Mechanics Survey/Materials Testing	3
	General Elective (any MnTC area) *INDS1020 recommended*	4

First Year - Spring Semester		13 cr
CIVL1222	Civil Drafting	4
CIVL1231	Intermediate Surveying & GPS	5
CIVL1242	Construction Surveying	2
CIVL1256	Hydrology	1
CIVL1257	UAV/Drone Photogrammetry	1

TOTAL PROGRAM CREDITS 30

DAKOTA COUNTY
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CONSTRUCTION & MANUFACTURING

CONSTRUCTION MANAGEMENT

Delivery: Fully Online

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

AWARDS

Construction Management A.S. Degree . . . . 60 cr.
Construction Management A.A.S. Degree . . . . 60 cr.
Construction Codes & Inspection Certificate . . . . 24 cr.
Construction Codes & Permitting Specialist Certificate . . . 23 cr.

MAJOR DESCRIPTION

Construction Management prepares students for supervisory and management positions in the construction industry. The curriculum combines basic fundamentals with key courses in applied management, engineering, design and business that are required to manage complex construction projects.

Construction management is an ideal career choice if you have a strong, general interest in building and design plus an aptitude for taking the lead role on big projects from start to finish. As a construction manager, you'll oversee all phases of a project, from planning to budgeting to production.

Construction Codes and Inspection Certificate is designed to prepare the student for a career as an inspector and/ or plan reviewer in various areas of the construction inspection field, and expand the knowledge of the construction manager or field superintendent on the various components that make up the building code. The student gains the knowledge and develops skills necessary to perform as a construction inspector or plan reviewer in general building code compliance inspection or in specific areas of code compliance, and prepares them to sit for the applicable certified inspector test administered by the International Code Council. It is one pathway to the Associate in Applied Science (A.A.S.) in Construction Management.

Construction Codes and Permitting Certificate is designed to prepare the student for a career as a permit specialist for a local government, third-party inspection firms, contractors, or design firms. This program will also expand the knowledge of the working permit technicians, inspectors, construction manager or field superintendent on the various components that make up the building code and the permitting process. The student gains the knowledge and develops skills necessary to perform as a permit coordinator and prepares them to sit for the applicable certified permit technician, certified building, and certified residential tests administered by the International Code Council. It is one pathway to the Associate in Applied Science (A.A.S.) in Construction Management.

The Construction Management A.S. has two articulation agreements for 4 year degrees:

Minnesota State University of Moorhead
Construction Management – B.S.

Bemidji State University
Construction Management – B.A.S.

Other transfer options: Our curriculum is designed with ACCE or ABET guidelines in mind. Our courses should fit well into the following colleges that offer a 4 year degree in construction management:

Minnesota State—Mankato, University of Wisconsin—Stout, North Dakota State University, University of Minnesota, South Dakota State University, and Iowa State University. Please contact these universities for more specific transfer information.

WORK ENVIRONMENT

Working in this field is likely to include both office and construction site work.

Construction inspectors and plan reviewers spend considerable time inspecting worksites, reviewing plans for code compliance, alone or as part of a team. Field inspectors may have to climb ladders or crawl in tight spaces, whereas plan reviewers spend time in office settings and meetings. Most work full time during regular business hours.

POTENTIAL JOB TITLES
- Project Manager
- Design Manager
- Permit Coordinator
- Permit Administrator
- Building Official
- Building Inspector
- Plan Reviewer
- Site Manager

SALARY DATA
See latest data at careerwise.minnstate.edu.
- Average Wage: $53.30/hour
- Top Earners: $81.50/hour

ADDITIONAL INFORMATION

Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

A windows PC computer able to use the current Microsoft Office suite is required for all awards.

CMSV1200 requires a Windows PC that is compatible with the most up-to-date requirements for both Autodesk AutoCAD and Autodesk Revit. Current system requirements for this computer can be found on the Autodesk website.

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CONSTRUCTION MANAGEMENT
A.S. DEGREE

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

First Year - Fall Semester		15 cr
CMSV2860	Construction Plan Reading	2
CMSV2870	Construction Management	3
ENGl1150	Composition I	3
PHIL1100	Ethics	3
PSYC1105	General Psychology	4

First Year - Spring Semester		15 cr
CMSV2850	Construction Safety	2
CMSV2875	Mechanical & Electrical Systems	3
CMSV2890	Building Organization & Tech.	3
ENGL2000	Composition II	3
MATS1300	College Algebra *or*	
MATS1340	Math for Engineering Technology	4

Second Year - Fall Semester		13 cr
CMSV2885	Construction Estimating	3
ACCT1010	Financial Accounting	4
COMS1020	Interpersonal Communications	3
ECON1100	Microeconomics	3

Second Year - Spring Semester		17 cr
CMSV2100	Soils & Concrete Technology	4
CMSV2900	Construction Scheduling	3
ARTS1310	History of Architecture	3
BUSN1000	Foundations of Management	3
PHYS1100	College Physics I	4

TOTAL PROGRAM REQUIREMENTS 60

CONSTRUCTION MANAGEMENT
A.A.S. DEGREE

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

First Year - Fall Semester		14 cr
CMSV2860	Construction Plan Reading	2
CMSV2870	Construction Management	3
ENGL1150	Composition I	3
PHIL1100	Ethics	3
	Technical Elective*	3

First Year - Spring Semester		15 cr
CMSV2850	Construction Safety	2
CMSV2875	Mechanical & Electrical Systems	3
CMSV2890	Building Organization & Technology	3
	Technical Elective*	3
MATS1300	College Algebra *or*	
MATS1340	Math for Engineering Technology	4

Second Year - Fall Semester		15 cr
CMSV1200	Construction Graphics	3
CMSV2885	Construction Estimating	3
BUSN1000	Foundations of Management	3
COMS1020	Interpersonal Communications	3
	Technical Electives*	3

Second Year - Spring Semester		16 cr
CMSV2100	Soils & Concrete Technology	4
CMSV2900	Construction Scheduling	3
CMSV2970	Construction Management Internship	3
	Technical Electives*	3
PHYS1050	Introduction to Physics	3

TOTAL PROGRAM REQUIREMENTS 60

* Select technical electives from CMSV courses, BUSN1600, or the following ELEC courses: ELEC1130, 2210, 1139 & 2260. Other courses may be used but will require a petition.

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CONSTRUCTION CODES & INSPECTION
CERTIFICATE

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

First Year - Fall Semester	11 cr
CMSV2860 Construction Plan Reading.	2
CMSV2710 IRC Plan Review & Inspections	3
CMSV2741 Fire Suppression & Alarm Systems	3
CMSV2890 Building Organization & Technology.	3

First Year - Spring Semester	13 cr
CMSV2720 IBC Plan Review & Inspections	3
CMSV2100 Soils & Concrete Technology.	4
CMSV2730 IMC Plan Review & Inspections.	3
CMSV2875 Mechanical & Electrical Systems.	3

TOTAL PROGRAM REQUIREMENTS **24**

CONSTRUCTION CODES & PERMITTING
CERTIFICATE

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

One Year Plan:

First Year - Fall Semester	11 cr
CMSV 1101 Intro to the Const Industry.	3
CMSV 1200 Construction Graphics.	3
CMSV 2710 IRC Plan Review & Inspections	3
CMSV 2860 Construction Plan Reading.	2

First Year - Spring Semester	12 cr
BUSN 1600 Intro to Public Administration	3
CMSV 2720 IBC Plan Review & Inspections	3
CMSV 2875 Mechanical & Electrical Systems.	3
CMSV 2890 Building Organization & Technology.	3

TOTAL PROGRAM REQUIREMENTS **23**

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DAKOTA COUNTY
TECHNICAL COLLEGE

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CONSTRUCTION & MANUFACTURING

ELECTRICAL CONSTRUCTION & MAINTENANCE

Delivery: Daytime Classes

Start: Fall or Spring Semester, Full-Time

AWARDS

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

MAJOR DESCRIPTION

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

Employment in this field typically requires successful completion of the Minnesota Electrical licensing exam.

WORK ENVIRONMENT

Able to work indoors and out, electricians must be safety conscious and able to distinguish colors. They find work with electrical contractors, technology system contractors, registered employers who only perform electrical work in facilities they own or lease, and manufacturers of electrical equipment.

POTENTIAL JOB TITLES

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

SALARY DATA

See latest data at careerwise.minnstate.edu.

- Average Wage: $35.76/hour
- Top Earners: $50.39/hour

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

ADDITIONAL INFORMATION

Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

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

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

First Year - Fall Semester		18 cr
ELEC1110	D.C. Electricity Theory and Lab.	3
ELEC1120	A.C. Electricity Theory and Lab	3
ELEC1130	National Electrical Code I	3
ELEC1137	Construction Site Safety	1
ELEC1139	Electrical Construction Fundamentals	2
ELEC1140	Blueprint Reading for Technicians	3
MATS1205	Math for Electricians.	3

First Year - Spring Semester		18 cr
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
COMS1020	Interpersonal Communication.	3

First Year - Summer Session		6 cr
ENGL1150	Composition I.	3
	General Elective (MnTC Goal 3 *or* 4).	3

Second Year - Fall Semester		18 cr
ELEC2110	Electrical Apparatus Theory	3
ELEC2120	Electrical Apparatus Lab.	6
ELEC2131	Programmable Logic Controllers Theory.	2
ELEC2141	Programmable Logic Controllers Lab.	4
	General Elective (any MnTC area)	3

Second Year - Spring Semester		18 cr
ELEC2210	National Electrical Code II.	3
ELEC2220	Electrical/Electronic Controls & Systems Theory	2
ELEC2230	Electrical/Electronic Controls & Systems Lab	4
ELEC2241	Industrial & Maintenance Wiring Theory/Lab	3
ELEC2251	Commercial Wiring Theory and Lab	3
ELEC2260	HVAC Wiring Theory and Lab.	3

Second Year - Summer Session		3 cr
	General Elective (any MnTC area)	3

TOTAL PROGRAM REQUIREMENTS **81**

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ELECTRICAL CONSTRUCTION & MAINTENANCE TECHNOLOGY
DIPLOMA

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

First Year - Fall Semester   18 cr

ELEC1110	D.C. Electricity Theory and Lab.	3
ELEC1120	A.C. Electricity Theory and Lab	3
ELEC1130	National Electrical Code I	3
ELEC1137	Construction Site Safety	1
ELEC1139	Electrical Construction Fundamentals	2
ELEC1140	Blueprint Reading for Technicians	3
MATS1205	Math for Electricians	3

First Year - Spring Semester   18 cr

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
COMS1020	Interpersonal Communications.	3

First Year - Summer Session   3 cr

	General Elective (any MnTC area)	3

Second Year - Fall Semester   18 cr

ELEC2110	Electrical Apparatus Theory	3
ELEC2120	Electrical Apparatus Lab.	6
ELEC2131	Programmable Logic Controllers Theory.	2
ELEC2141	Programmable Logic Controllers Lab.	4
ENGL1150	Composition I.	3

Second Year - Spring Semester   18 cr

ELEC2210	National Electrical Code II.	3
ELEC2220	Electrical/Electronic Controls & Systems Theory	2
ELEC2230	Electrical/Electronic Controls & Systems Lab	4
ELEC2241	Industrial & Maintenance Wiring Theory/Lab	3
ELEC2251	Commercial Wiring Theory and Lab	3
ELEC2260	HVAC Wiring Theory and Lab.	3

TOTAL PROGRAM REQUIREMENTS   75

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CONSTRUCTION & MANUFACTURING

ELECTRICAL LINEWORKER

Delivery: Daytime Classes

Start: July, Full-Time

AWARDS
Electrical Lineworker A.A.S. Degree .60 cr.
Electrical Lineworker Diploma . . . . 45 cr.

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

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

POTENTIAL JOB TITLES
• Construction Lineworker
• Line Crewman
• Electric Power Line Installer
• Line Erector
• Line Installer-Repairer
• Power Lineworker

SALARY DATA
See latest data at careerwise.minnstate.edu.
• Average Wage: $46.21/hour
• Top Earners: $63.16/hour

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

An Unrestricted Class A Commercial Driver's License (CDL) is required to graduate from this program and is incorporated into ELLW1155.

ELECTRICAL LINEWORKER
A.A.S. DEGREE

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

July Start*		6 cr
ELLW1110	Distribution I	4
ELLW1120	Utility Equipment and Tools.	2

First Year - Fall Semester		20 cr
ELLW1130	Basic Electricity	2
ELLW1140	Distribution IIA	4
ELLW1141	Distribution IIB	4
ELLW1145	Rope and Rigging.	2
ELLW1150	Construction Planning and Practices	2
ELLW1155	Equipment Operations	2
ELLW1160	Transformers I.	4

First Year - Spring Semester		19 cr
ELLW1162	Transformers II	4
ELLW1165	Pole Top and Bucket Rescue.	2
ELLW1170	Line Construction and Maintenance A	4
ELLW1172	Line Construction and Maintenance B	4
ELLW1175	System Protection.	2
ELLW1180	Underground Cable and Fault Locating.	2
ELLW1185	Electrical Industry Search Skills	1

Additional Requirements		15 cr
COMS1020	Interpersonal Communication.	3
ENGL1150	Composition I.	3
	General Elective (MnTC Goal 3 *or* 4).	3
	General Electives (any MnTC area)	6

TOTAL PROGRAM REQUIREMENTS 60

* Program Prerequisite: Students must pass ELLW0098 Introduction to Climbing before taking any other ELLW courses. This course is offered every summer in July.

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ELECTRICAL LINEWORKER
DIPLOMA

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

July Start*		6 cr
ELLW1110	Distribution I	4
ELLW1120	Utility Equipment and Tools	2

First Year - Fall Semester		20 cr
ELLW1130	Basic Electricity	2
ELLW1140	Distribution IIA	4
ELLW1141	Distribution IIB	4
ELLW1145	Rope and Rigging	2
ELLW1150	Construction Planning and Practices	2
ELLW1155	Equipment Operations	2
ELLW1160	Transformers I	4

First Year - Spring Semester		19 cr
ELLW1162	Transformers II	4
ELLW1165	Pole Top and Bucket Rescue	2
ELLW1170	Line Construction and Maintenance A	4
ELLW1172	Line Construction and Maintenance B	4
ELLW1175	System Protection	2
ELLW1180	Underground Cable and Fault Locating	2
ELLW1185	Electrical Industry Search Skills	1

TOTAL PROGRAM REQUIREMENTS   45

* Program Prerequisite: Students must pass ELLW0098 Introduction to Climbing before taking any other ELLW courses. This course is offered every summer in July.

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CONSTRUCTION & MANUFACTURING

HVAC & REFRIGERATION TECHNOLOGY

Delivery: Daytime

Start: Fall Semester, Full-Time

AWARDS

HVAC & Refrigeration A.A.S. . . . . .60 cr.
HVAC & Refrigeration Diploma. . . . . 39 cr.

MAJOR DESCRIPTION

Employment of HVAC/R technicians is expected to increase faster than average for all occupations through the year 2022.* The goal of DCTC's Heating, Ventilation, Air Conditioning and Refrigeration Diploma program is to provide students with the entry level knowledge and skills required to safely install, maintain, troubleshoot and repair today's technologically advanced HVAC/R systems. Through group discussions, lectures and hands-on laboratory experience with actual HVAC/R equipment, this program helps students become successful in this exciting and challenging industry career. Interested applicants should possess strong basic math skills and mechanical aptitude. Each student will be prepared and required to pass the EPA Section 608 refrigerant handling certification exam.

WORK ENVIRONMENT

HVAC/R technicians must be able to work independently, in extreme conditions, at all hours of the day. From the cold of winter to the heat and humidity of summer, in attics, basements, crawl spaces and on roof tops. Occasional heavy lifting, working off ladders or scaffolding and being comfortable with heights are also potential requirements. HVAC/R technicians should expect to be on call and work after hours and some weekends.

POTENTIAL JOB TITLES

- Residential and/or Commercial HVAC/R Service Technician
- Residential and/or Commercial HVAC/R Installer
- Sheet Metal Fabrication and Installation
- HVAC/R Equipment and Parts Salesperson

SALARY DATA

See latest data at careerwise.minnstate.edu.
- Average Wage: $33.17/hour
- Top Earners: $48.76/hour

ADDITIONAL INFORMATION

Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

HVAC & REFRIGERATION
A.A.S. DEGREE

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

First Year - Fall Semester		20 cr
HVAC1100	Alternative Heating and Cooling Methods	2
HVAC1110	Indoor Air Quality	1
HVAC1120	Refrigeration Principles and Applications	4
HVAC1130	Tool Usage, Brazing and Soldering Techniques	2
HVAC1140	Electric Motors/Controls/Schematics	2
HVAC1150	Halide Refrigerant Certification	2
HVAC1160	Employability, Problem Solving and Customer Relations	2
HVAC1170	Introduction to Basic Electricity	2
COMS1020	Interpersonal Communication	3

First Year - Spring Semester		19 cr
HVAC1200	Forced Air Heating Systems	4
HVAC1210	Hydronic Heating Systems	2
HVAC1230	Ventilating Systems and HVAC Installation	4
HVAC1240	Air Conditioning and Heat Pump Service	3
HVAC1250	Commercial Refrigeration	3
	General Elective (MnTC Goal 3) *BIOL1110 program recommended*	3

Second Year - Fall Semester		12 cr
HVAC2220	Commercial HVAC	3
ENGL1150 ENGL1200	Composition I *or* Technical Writing	3
IETA1500	Print Reading	3
IETA2000	Boiler Operations and Power Distributions	3

Second Year - Spring Semester		9 cr
HVAC2900	Internship	1
IETA1600 IETA2700	Welding Basics *or* Introduction to Plumbing	2
	General Elective (any MnTC area)	6

TOTAL PROGRAM REQUIREMENTS 60

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HVAC & REFRIGERATION
DIPLOMA

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

First Year - Fall Semester		20 cr
HVAC1100	Alternative Heating and Cooling Methods	2
HVAC1110	Indoor Air Quality	1
HVAC1120	Refrigeration Principles and Applications	4
HVAC1130	Tool Usage, Brazing and Soldering Techniques	2
HVAC1140	Electric Motors/Controls/Schematics	2
HVAC1150	Halide Refrigerant Certification	2
HVAC1160	Employability, Problem Solving and Customer Relations	2
HVAC1170	Introduction to Basic Electricity	2
COMS1020	Interpersonal Communication	3

First Year - Spring Semester		19 cr
HVAC1200	Forced Air Heating Systems	4
HVAC1210	Hydronic Heating Systems	2
HVAC1230	Ventilating Systems and HVAC Installation	4
HVAC1240	Air Conditioning and Heat Pump Service	3
HVAC1250	Commercial Refrigeration	3
	General Elective (MnTC Goal 3 *or* 4) *BIOL1110 program recommended*	3

TOTAL PROGRAM REQUIREMENTS   39

HVAC2960 Specialized Lab - 1 credit technical elective is suggested, but not required.

DAKOTA COUNTY
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CONSTRUCTION & MANUFACTURING

INDUSTRIAL ENGINEERING TECHNICIAN

Delivery: Daytime Classes

Start: Fall Semester, Full-Time

AWARDS

Industrial Engineering Technician A.A.S. . . . . .60 cr.

MAJOR DESCRIPTION

The Industrial Engineering program allows students to "earn while they learn" and introduces students to a high demand and well-paid career field. According to the Minnesota Department of Employment and Economic Development (DEED), the industrial engineering field has the highest employee demand rating possible (5 out of 5 stars). The Industrial Engineering field is a vast and ever-changing industry that has numerous employment opportunities. Production and manufacturing industry has radically changed from decades prior. This career field now relies on robotics and mechanized production more than ever before.

The Industrial Engineering Technician program at DCTC introduces students to numerous areas that include mechanics, electrical, HVAC, programing, mechatronics, pneumatics, hydraulics, welding among numerous other field skills. Students become proficient in a blend of fields that allow them opportunities for many career paths.

The Industrial Engineering Technician program is not like normal college programs, but utilizes an apprenticeship model instead of the traditional college model. Students are highly encouraged to work in the industry while taking classes. The number of courses per semester varies because of this aspect. During the first year of the program, students receive skills necessary to find employment and/or internship during the summer between their first and second year. After returning in the fall, students continue employment during their second year because of a decrease in credit load. This setup allows students to "earn while they learn."

SALARY DATA

See latest data at careerwise.minnstate.edu.
- Average Wage: $31.09/hour
- Top Earners: $38.61/hour

ADDITIONAL INFORMATION

Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

INDUSTRIAL ENGINEERING TECHNICIAN
A.A.S. DEGREE

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

First Year - Fall Semester		14 cr
IETA1001	Intro to Industrial Safety and Health	2
IETA1100	Fundamentals of AC/DC Electricity I	3
IETA1200	Fundamentals of AC/DC Electricity II.	3
IETA1300	Mechanical Fundamentals	3
IETA1500	Print Reading	3

First Year - Spring Semester		15 cr
IETA1400	Process Controls/Instrumentation I.	3
IETA1600	Welding Basics.	2
IETA1700	Fluid Power	4
IETA1800	Mechanical Fundamentals for Process Control	3
IETA1900	Programmable Logic Controls (PLC) Fundamentals.	3

First Year - Summer Session		7 cr
IETA2900	Internship.	4
ENGL1200	Technical Writing.	3

Second Year - Fall Semester		13 cr
IETA2000	Boiler Operations and Power Distributions.	3
IETA2300	Mechanical Fundamentals 3	4
HVAC2220	Commercial HVAC	3
COMS1020	Interpersonal Communication.	3

Second Year - Spring Semester		11 cr
IETA2700	Introduction to Plumbing	2
	General Elective (MnTC Goal 4) *MATS1340 recommended*	3
	General Elective (any MnTC area)	6

TOTAL PROGRAM REQUIREMENTS 60

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DAKOTA COUNTY
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CONSTRUCTION & MANUFACTURING

INTERIOR DESIGN

Delivery: Daytime classes for A.A.S. degree, fully online for Certificate (except for completing internship hours)

Start: Fall Semester, Full-Time

AWARDS

Interior Design A.A.S. Degree . . . . 60 cr.
Interior Design: NCIDQ Pathway Certificate . . . . 16 cr.

MAJOR DESCRIPTION

This award-winning Interior Design program is a challenging course of study preparing students to launch a career in an exciting and dynamic profession. Emphasis is placed on acquiring the hands-on knowledge and skills to design functional and aesthetically engaging environments. The curriculum is architecturally based and explores spatial design and its' embellishment. All aspects of space—scale, proportion, configuration, and lighting, as well as textures, materials, and color—are studied in relation to their effect on human well-being. Technical skills are gained in the latest computer-aided design (CAD), building information management (BIM) software, and 3D visualization and graphics. Current software includes: Auto-Cad, Revit, Sketch-up, 20/20, Photoshop and InDesign. These skills allow students to produce professional presentations and construction documents.

The students work closely in small groups with their instructors/industry practitioners on projects that develop in size and complexity. Service-learning and inter-disciplinary projects provide a real world experience. Graduates leave the program with a solid technical foundation and have the skills to collaborate with fellow professionals and deliver sustainable interior environments matched to the needs of their clients. Students also have options to transfer Interior Design credits to a 4-year university.

ACCREDITATION

The Interior Design program is accredited by the National Kitchen and Bath Association.

WORK ENVIRONMENT

Interior designers work closely with clients, home owners, businesses, architects, contractors, and tradespeople. They frequently work as members of a design team, primarily in architecture and interior design firms. This can be a highly competitive field, where use of the design process is critical to meeting project deadlines. Graduates will find employment in many areas, such as: residential design/architectural firms, kitchen and bath studios, furnishings, product sales, builders, and showrooms.

POTENTIAL JOB TITLES

- Kitchen and Bath Designer
- Residential Interior Designer
- Interior Design Coordinator
- Sales Representative
- Furniture & Textiles Consultant

SALARY DATA

See latest data at careerwise.minnstate.edu.
- Average Wage: $30.98/hour
- Top Earners: $48.15/hour

ADDITIONAL INFORMATION

Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

Students are provided with a laptop for this program, and an associated fee is charged each semester for software and hardware cost. The laptop includes all software required for the program, in line with professional trends and all associated updates. Upon successful completion of all four semesters, the student may keep the laptop as their own.

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INTERIOR DESIGN
A.A.S. DEGREE

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

First Year - Fall Semester		17 cr
ARTS1301	Design Fundamentals	3
IDES1111	Drafting I	4
IDES1121	Critical Thinking & Programming	4
IDES1137	Presentation Techniques I	3
IDES2108	Color and Light	3

First Year - Spring Semester		15 cr
IDES1207	Residential Studio I	4
IDES1211	Drafting II	4
IDES1241	Presentation Techniques II	3
IDES2111	Materials & Estimating	4

Second Year - Fall Semester		14 cr
IDES1218	Commercial Studio I	4
IDES2147	Residential Studio II	4
	General Elective (MnTC Goal 3 *or* 4) *BIOL1110 recommended*	3
COMS1020	Interpersonal Communication	3

Second Year - Spring Semester		14 cr
ARTS1550 ARTS1310	Art History *or* History of Architecture	3
ENGL1150	Composition I	3
IDES1232	History of Architecture and Interiors	3
IDES2202	Business Practices	3
IDES2972	Internship I	2

TOTAL PROGRAM REQUIREMENTS   60

INTERIOR DESIGN: NCIDQ PATHWAY
CERTIFICATE

Students must complete an A.A.S. in Interior Design before starting this certificate.
This is a suggested sample course sequence.
Please contact your program advisor regarding your academic plans.

First Year - Fall Semester		9 cr
IDES1020	Methods & Materials I	3
IDES1520	Building Codes & Regulations	3
IDES2188	Computer Drafting III	3

First Year - Spring Semester		7 cr
IDES2138	Commercial Studio II	5
IDES2973	Internship II	2

TOTAL PROGRAM REQUIREMENTS   16

DAKOTA COUNTY
TECHNICAL COLLEGE

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CONSTRUCTION & MANUFACTURING

WELDING TECHNOLOGY

Delivery: Daytime, Afternoon, and Evening Classes

Start: Fall Semester, Full-Time

AWARDS
Welding Technology Diploma . . . . 36 cr.

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

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

POTENTIAL JOB TITLES
- Welder
- Welding Assembly Technician
- Machine Operator
- Spot Welder
- Fitter-Welder
- Robot Operator
- Fabricator

SALARY DATA
See latest data at *careerwise.minnstate.edu*.
- Average Wage: $22.74/hour
- Top Earners: $31.12/hour

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

WELDING TECHNOLOGY
DIPLOMA

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

First Year - Fall Semester		19 cr
MATS1000	Math for Welders	3
WELD1101	Welding Safety and Theory I	3
WELD1111	Shielded Metal Arc Welding I	3
WELD1120	Gas Metal Arc Welding I	2
WELD1130	Flux Cored Arc Welding I	2
WELD1140	Gas Tungsten Arc Welding I	3
WELD1150	Print Reading I	3

First Year - Spring Semester		17 cr
INTS1010	Job Search Skills	1
WELD1200	Print Reading II	3
WELD1210	Welding Safety and Theory II	3
WELD1230	Shielded Metal Arc Welding II	3
WELD1240	Gas Metal Arc Welding II	2
WELD1250	Flux Cored Arc Welding II	2
WELD1260	Gas Tungsten Arc Welding II	3

TOTAL PROGRAM REQUIREMENTS   36

Students must pass all first-semester WELD courses before starting any second-semester WELD courses.

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DAKOTA COUNTY
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HEALTH & EDUCATION

PROGRAMS OF STUDY

Dental Assistant

Early Childhood & Youth Development

Exercise & Sport Science

Medical Assistant

Medical Coding Specialist

Nursing Assistant

Practical Nursing

Sport Management

Veterinary Technician

SERVICE FOR LIFE

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

From nursing to child development, professionals in health and education 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 education are generally:

- Mature
- Responsible
- Patient
- Respectful
- Supportive
- Dependable
- Collaborative
- Enthusiastic
- Empathetic
- Compassionate
- Organized
- Conscientious

Unless otherwise specified, salary data is sourced from careerwise.minnstate.edu.

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CANPC: Certified Anesthesia Pain
  Management Coder
CPI: Approved Instructor American
  Academy of Professional Coders

HEALTH & EDUCATION

DENTAL ASSISTANT

Delivery: Mostly daytime on campus classes, some classes will be completed online

Start: Fall Semester, Full-Time

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

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

Employment in this field typically requires successful completion of the Certified Dental Assistant (CDA) and Licensed Dental Assistant (LDA) licensing exams.

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

POTENTIAL JOB TITLES
• Certified Dental Assistant (CDA)
• Licensed Dental Assistant (LDA)
• Expanded Duty Dental Assistant
• Restorative Dental Assistant

SALARY DATA
See latest data at careerwise.minnstate.edu.
• Average Wage: $28.25/hour
• Top Earners: $31.40/hour

ACCREDITATION
The Dental Assistant program is accredited by the Commission on Dental Accreditation of the American Dental Association.

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

DENTAL ASSISTANT
A.A.S DEGREE

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

First Year - Fall Semester		17 cr
DENT1100	Dental Science	4
DENT1110	Pre-Clinical Dental Assisting	3
DENT1120	Dental Health	2
DENT1135	Chairside Assisting I	4
DENT1145	Dental Materials	4

First Year - Spring Semester		16 cr
DENT1250	Radiology	5
DENT1260	Expanded Functions	5
DENT1275	Chairside Assisting II	4
DENT1280	Dental Practice Management	2

First Year - Summer Session		7 cr
DENT2970	Externship	7

Second Year - Fall Semester		20 cr
COMS1020	Interpersonal Communication	3
ENGL1150	Composition I	3
PHIL1350	Medical Ethics	3
PSYC1350	Lifespan Development	4
	General Elective (any MnTC area)	3
	General Elective (MnTC Goal 3 *or* 4)	4

TOTAL PROGRAM REQUIREMENTS 60

Dental Assistant A.A.S. students are required to obtain a C or higher on all DENT and general education courses.

DENTAL ASSISTANT
DIPLOMA

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

First Year - Fall Semester		17 cr
DENT1100	Dental Science	4
DENT1110	Pre-Clinical Dental Assisting	3
DENT1120	Dental Health	2
DENT1135	Chairside Assisting I	4
DENT1145	Dental Materials	4

First Year - Spring Semester		16 cr
DENT1250	Radiology	5
DENT1260	Expanded Functions	5
DENT1275	Chairside Assisting II	4
DENT1280	Dental Practice Management	2

First Year - Summer Session		7 cr
DENT2970	Externship	7

TOTAL PROGRAM REQUIREMENTS 40

Dental Assistant Diploma students are required to obtain a C or higher on all DENT courses.

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HEALTH & EDUCATION

EARLY CHILDHOOD & YOUTH DEVELOPMENT

Delivery: Daytime and fully online, some courses require off campus field experience hours

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

AWARDS
Early Childhood Education Transfer Pathway A.S. Degree . . . 60 cr.
Child & Family Studies A.S. Degree . . . . 60 cr.
Early Childhood & Youth Development A.A.S. Degree . . . . 60 cr.
Early Childhood & Youth Development Diploma . . . . 33 cr.
Early Childhood & Youth Development Certificate. . . . . 18 cr.

*Participation in any of the above awards require a clear MN Criminal Background Study.

MAJOR DESCRIPTION
There are a wide variety of career opportunities in the field of Early Childhood & Youth Development. These professions are projected to increase.

Early Childhood Education Transfer Pathway A.S. Degree: This program is designed to prepare students for transfer to an early childhood teacher licensure program. Students learn about child development, guidance, professional relationships, nutrition, health & safety, cultural sensitivity, and techniques for promoting learning in young children. This program is available online and most courses are also available in the classroom. Courses meet Minnesota Department of Human Services educational requirements for teachers in a child care setting.

Child and Family Studies A.S. Degree: This program delivers a broad scope of knowledge and skills necessary for working with, or on behalf of, children and families in a variety of non-teaching career fields such as human service agencies and services, home visiting, coaching, early childhood management, and child life. Students learn about child development, guidance, professional relationships, nutrition, health & safety, cultural sensitivity, and techniques for supporting children and families in a variety of settings, including therapeutic sites. This program is available online and most courses are also available in the classroom. This degree is designed for students wishing to transfer to a four-year institution to obtain an advanced degree. Courses meet Minnesota Department of Human Services educational requirements for teachers in a child care setting.

Early Childhood and Youth Development A.A.S. Degree: This program prepares students for employment in a variety of early childhood and youth settings. Students learn about child development, guidance, professional relationships, nutrition, health & safety, cultural sensitivity, and techniques for promoting learning in young children. This program is available online and most courses are also available in the classroom. Courses meet Minnesota Department of Human Services educational requirements for teachers in a child care setting.

Early Childhood and Youth Development Diploma: This program prepares individuals who would like to work in a child care center or preschool as a lead teacher or in a family child care program.

Early Childhood and Youth Development Certificate: This program prepares individuals for work in a child care center or preschool as a teacher or in a family child care program.

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

POTENTIAL JOB TITLES
• Preschool Teacher
• Child Care Teacher
• Family Child Care Provider
• Social Service Agency Specialist
• School District Paraprofessional
• Child Life Assistant
• Head Start Teacher
• Home Visitor
• Program Director

SALARY DATA
See latest data at careerwise.minnstate.edu.
• Average Wage: $18.91/hour
• Top Earners: $25.54/hour

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

EARLY CHILDHOOD EDUCATION TRANSFER PATHWAY
A.S. DEGREE

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

The Early Childhood Education Transfer Pathway A.S. offers students a powerful option: the opportunity to complete an Associate of Science degree with course credits that directly transfer to designated bachelor's degree programs at Minnesota State universities. The entire curriculum has been specifically designed so that students completing this pathway degree and transferring to one of the seven Minnesota State universities enter the university with junior-year status. All courses in the Transfer Pathway associate degree will directly transfer and apply to the designated bachelor's degree programs in a related field.

TRANSFER PATHWAYS

With this Transfer Pathway, you will be able to transfer to the following designated baccalaureate degree majors:

Metropolitan State University
Urban Early Childhood Education – B.S.

Southwest Minnesota State university
Early Childhood Education – B.S.

St. Cloud State University
Early Childhood Education – B.S.

Winona State University
Early Childhood Education (birth to age 3) – B.T.

First Year - Fall Semester		15 cr
ECYD1110	Introduction to Early Childhood Education	3
ECYD1215	Child Growth and Development	3
ECYD1225	Health, Wellness, and Nutrition	3
COMS1020	Interpersonal Communication	3
ENGL1150	Composition I	3

First Year - Spring Semester		15 cr
ECYD1235	Guiding Young Children	3
ECYD1250	Learning and Creativity in Early Childhood	3
ECYD1570	Child and Family Relations in a Diverse World	3
	General Elective (MnTC Goal 3)	3
	General Elective (MnTC Goal 4)	3

Second Year - Fall Semester		15 cr
ECYD1335	Observation and Assessment	3
ECYD2340	Children with Differing Abilities	3
	General Electives (any MnTC area) **	9

Second Year - Spring Semester		15 cr
ECYD1520	Practicum I	3
ECYD2550	Language and Literacy Development	3
	General Electives (any MnTC area) **	9

TOTAL PROGRAM REQUIREMENTS 60

** It is recommended to complete MnTC Goal 1 by choosing one of the following courses as one of your MnTC electives: COMS1015, ENGL1200, ENGL2000, ENGL1300

Speak with ECYD program advisor for recommended electives.

Students must earn a grade of 'C-' or better for all required ECYD courses and ECYD technical electives.

CHILD & FAMILY STUDIES
A.S. DEGREE

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

First Year - Fall Semester		15 cr
ECYD1110	Introduction to Early Childhood Education.	3
ECYD1215	Child Growth and Development.	3
ECYD1225	Health, Wellness, and Nutrition.	3
COMS1020	Interpersonal Communication.	3
ENGL1150	Composition I.	3

First Year - Spring Semester		15 cr
ECYD1235	Guiding Young Children	3
ECYD1570	Child and Family Relations in a Diverse World.	3
	General Elective (MnTC Goal 3)	3
	General Elective (any MnTC area)	3
	Technical Elective (any ECYD)	3

Second Year - Fall Semester		15 cr
ECYD1335	Observation and Assessment	3
ECYD2340	Children with Differing Abilities	3
	General Elective (MnTC Goal 4)	3
	General Electives (any MnTC area)	6

Second Year - Spring Semester		15 cr
ECYD2610	Leadership in Early Childhood Organizations	3
ECYD2960	Field Experience	3
	General Electives (any MnTC area)	9

TOTAL PROGRAM REQUIREMENTS   60

Speak with ECYD program advisor for recommended electives.

Students must earn a grade of 'C-' or better for all required ECYD courses and ECYD technical electives.

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

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

First Year - Fall Semester		15 cr
ECYD1110	Introduction to Early Childhood Education.	3
ECYD1215	Child Growth and Development.	3
ECYD1225	Health, Wellness, and Nutrition.	3
COMS1020	Interpersonal Communication.	3
ENGL1150	Composition I.	3

First Year - Spring Semester		12 cr
ECYD1235	Guiding Young Children	3
ECYD1250	Learning and Creativity in Early Childhood.	3
ECYD1570	Child and Family Relations in a Diverse World.	3
	General Elective (MnTC Goal 3 *or* 4).	3

First Year - Summer Session		3 cr
ECYD1520	Practicum I	3

Second Year - Fall Semester		15 cr
ECYD1335	Observation and Assessment	3
ECYD1350	Curriculum Planning and Implementation.	3
ECYD2340	Children with Differing Abilities	3
	General Elective (any MnTC area)	3
	Technical Elective (any ECYD)	3

Second Year - Spring Semester		15 cr
ECYD2520	Practicum II.	3
ECYD2610	Leadership in Early Childhood Organizations	3
	General Elective (any MnTC area)	3
	Technical Electives (any ECYD)	6

TOTAL PROGRAM REQUIREMENTS   60

Speak with ECYD program advisor for recommended electives.

Students must earn a grade of 'C-' or better for all required ECYD courses and ECYD technical electives.

EARLY CHILDHOOD & YOUTH DEVELOPMENT
DIPLOMA

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

First Year - Fall Semester		15 cr
ECYD1110	Introduction to Early Childhood Education.	3
ECYD1215	Child Growth and Development.	3
ECYD1225	Health, Wellness, and Nutrition.	3
ECYD1335	Observation and Assessment	3
ECYD2340	Children with Differing Abilities	3

First Year - Spring Semester		12 cr
ECYD1235	Guiding Young Children	3
ECYD1250	Learning and Creativity in Early Childhood.	3
ECYD1570	Child and Family Relations in a Diverse World.	3
	Technical Elective (any ECYD)	6

First Year - Summer Session		3 cr
ECYD1520	Practicum I	3

TOTAL PROGRAM REQUIREMENTS   33

Students must earn a grade of 'C-' or better for all required ECYD courses and ECYD technical electives.

EARLY CHILDHOOD & YOUTH DEVELOPMENT
CERTIFICATE

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

First Year - Fall Semester		9 cr
ECYD1110	Introduction to Early Childhood Education.	3
ECYD1215	Child Growth & Development	3
ECYD1225	Health, Wellness, and Nutrition.	3

First Year - Spring Semester		9 cr
ECYD1235	Guiding Young Children	3
ECYD1250	Learning and Creativity in Early Childhood	3
ECYD1570	Child and Family Relations in a Diverse World.	3

TOTAL PROGRAM REQUIREMENTS   18

Students must earn a grade of 'C-' or better for all required ECYD courses.

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HEALTH & EDUCATION

EXERCISE & SPORT SCIENCE

Delivery: Majority of courses are offered daytime on campus, some online courses are offered

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

AWARDS

Exercise Science Transfer Pathway A.S. Degree . . . . 60 cr.
Exercise & Sport Science A.A.S. Degree . . . . 60 cr.
Personal Training Certificate . . . . 16 cr.

MAJOR DESCRIPTION

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

Both programs are designed to prepare students to gain knowledge and skills to work in the health, fitness and sport industries. Technical information will be combined with liberal arts and sciences to prepare students to work effectively with a variety of clients in health and fitness settings.

Personal Training Certificate: This program provides the student with hands-on, practical experience in the area of personal training. The certificate consists of 16 credits of coursework. All of the courses are offered during fall semester. EXER2020 Personal Training and Exercise Leadership I is offered in partnership with the American Council on Exercise (ACE). Students will be prepared for the ACE Personal Trainer certification exam following successful completion of the course. Students will be expected to become nationally certified as a Personal Trainer. DCTC provides discounts to national certification exams but does not include the cost in tuition.

WORK ENVIRONMENT

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

POTENTIAL JOB TITLES

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

SALARY DATA

See latest data at careerwise.minnstate.edu.

- Average Wage: $23.11/hour
- Top Earners: $32.44/hour

ADDITIONAL INFORMATION

Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

EXERCISE SCIENCE TRANSFER PATHWAY
A.S. DEGREE

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

The Exercise Science Transfer Pathway A.S. offers students a powerful option: the opportunity to complete an Associate of Science degree whose course credits will directly transfer to designated bachelor's degree programs at Minnesota State universities. The entire curriculum has been carefully designed to guarantee junior-year status to students who have been admitted to a Minnesota State university. There, students can complete their bachelor's degree by earning 60 additional credits. Students may also transfer to additional 4-year colleges. Work with an advisor for transfer planning.

TRANSFER PATHWAYS

With this transfer pathway, you will be able to transfer to the following designated baccalaureate degree majors:

Minnesota State University, Mankato
Exercise Science – B.S.

Minnesota State University, Moorhead
Exercise Science – B.S.

Southwest Minnesota State University
Exercise Science – B.S.

Winona State University
Exercise and Rehabilitative Science – B.S.

First Year - Fall Semester		15 cr
EXER1000	Introduction to Human Performance Studies	3
EXER1020	Strength Training	2
BIOL1500	General Biology	4
COMS1020	Interpersonal Communication	3
ENGL1150	Composition I	3

First Year - Spring Semester		16 cr
EXER1015	Personal Health and Wellness	3
EXER1050	Nutrition for Health and Human Performance	3
	Technical Elective (EXER *or* PHED)	2
CHEM1500	Introduction to Chemistry	4
PSYC1105	General Psychology	4

Second Year - Fall Semester		14 cr
BIOL2000	Anatomy and Physiology I	4
ENGL2000	Composition II	3
SOCY1110	Intro to Sociology	3
	General Elective (MnTC Goal 6 *or* 8)	4

Second Year - Spring Semester		15 cr
EXER2115	Applied Exercise Physiology	3
BIOL2010	Anatomy and Physiology II	4
MATS1251	Statistics	4
	General Elective (MnTC Goal 5 *or* 10)	3
	General Elective (MnTC Goal 6)	1

TOTAL PROGRAM REQUIREMENTS 60

EXERCISE & SPORT SCIENCE
A.A.S. DEGREE

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

First Year - Fall Semester		15 cr
EXER1000	Introduction to Human Performance Studies	3
EXER1020	Strength Training	2
EXER1065	Psychology of Sport and Performance	3
BIOL1310	Intro Anatomy and Physiology	4
ENGL1150	Composition I	3

First Year - Spring Semester		15 cr
EXER1015	Personal Health and Wellness	3
EXER1025	Physical Conditioning	2
EXER1050	Nutrition for Health & Human Performance	3
PSYC1105	General Psychology	4
	Technical Elective (EXER)	3

Second Year - Fall Semester		15 cr
EXER2020	Personal Training and Exercise Leadership I	2
EXER2260	Recruiting and Retaining Clients	1
EXER2295	Social and Ethical Aspects of Sport	3
ADMS1018	Basic Computer Applications	3
COMS1020	Interpersonal Communication	3
SOCY1110	Introduction to Sociology (*or* SOCY1010)	3

Second Year - Spring Semester		15 cr
EXER2090	Exercise for Special Populations	2
EXER2115	Applied Exercise Physiology	3
EXER2275	Sport Marketing	3
EXER2975	Practicum	3
	Technical Elective (EXER)	4

TOTAL PROGRAM REQUIREMENTS   60

PERSONAL TRAINING
CERTIFICATE

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

First Year - Fall Semester		16 cr
EXER1020	Strength Training	2
EXER1065	Psychology of Sport and Performance	3
EXER2020	Personal Training and Exercise Leadership I	2
EXER2260	Recruiting and Retaining Clients	1
EXER2975	Practicum	1
BIOL1310 HEAL1101	Introduction to Anatomy and Physiology *or* Anatomy and Physiology	4
COMS1020	Interpersonal Communication	3

TOTAL PROGRAM REQUIREMENTS   16

DAKOTA COUNTY
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HEALTH & EDUCATION

MEDICAL ASSISTANT

Delivery: Daytime on campus, evening hybrid

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

AWARDS
Medical Assistant A.A.S. Degree. . . . . .60 cr.
Medical Assistant Diploma. . . . . 42 cr.

MAJOR DESCRIPTION
Medical assistants are multi-skilled health professionals specifically educated to work in a variety of healthcare settings performing clinical and administrative duties. The practice of medical assisting necessitates mastery of a complex body of knowledge and specialized skills requiring both formal education and practical experience that serve as standards for entry into the profession. A medical assistant's expansive cross-training includes duties such as taking medical histories, preparing patients for procedures, administering medications, drawing blood, obtaining vital signs, scheduling appointments and collecting and testing lab samples. The program goal is to prepare medical assistants who are competent in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains to enter the profession.

Employment in this field typically requires successful completion of the American Association of Medical Assistants (AAMA) certification exam.

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
See latest data at careerwise.minnstate.edu.
• Average Wage: $23.54/hour
• Top Earners: $24.87/hour

ACCREDITATION
The Medical Assistant program is accredited by the Commission on Accreditation of Allied Health Education Programs (caahep.org) upon the recommendation of the Medical Assisting Education Review Board (MAERB).

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

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MEDICAL ASSISTANT
A.A.S. DEGREE

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

First Year - Fall Semester		16 cr
HEAL1101	Anatomy and Physiology	4
HEAL1502	Medical Terminology	2
MDAS1125	Laboratory Skills I	4
MDAS1132	Clinical Procedures I	4
MDAS1151	Health Care Essentials	2

First Year - Spring Semester		15 cr
MDAS1223	Laboratory Skills II	4
MDAS1232	Clinical Procedures II	4
MDAS1271	Administrative Procedures	3
MDAS1702	Pharmacology & Math for Medical Assistants	4

First Year - Summer Session		11 cr
MDAS1211	Disease/Medical Treatment including Nutrition	4
MDAS2970	Practicum	6
MDAS2990	Capstone	1

Second Year - Fall Semester		9 cr
COMS1020	Interpersonal Communication	3
ENGL1150	Composition I	3
	General Elective (any MnTC area)	3

Second Year - Spring Semester		9 cr
	General Elective (MnTC Goal 3 **or** 4)	3
	General Electives (any MnTC area)	6

TOTAL PROGRAM REQUIREMENTS   60

Medical Assistant A.A.S. students are required to obtain a C or higher on all MDAS, HEAL 1101, and general education courses.

MEDICAL ASSISTANT
DIPLOMA

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

First Year - Fall Semester		16 cr
HEAL1101	Anatomy and Physiology	4
HEAL1502	Medical Terminology	2
MDAS1125	Laboratory Skills I	4
MDAS1132	Clinical Procedures I	4
MDAS1151	Health Care Essentials	2

First Year - Spring Semester		15 cr
MDAS1223	Laboratory Skills II	4
MDAS1232	Clinical Procedures II	4
MDAS1271	Administrative Procedures	3
MDAS1702	Pharmacology & Math for Medical Assistants	4

First Year - Summer Session		11 cr
MDAS1211	Disease/Medical Treatment including Nutrition	4
MDAS2970	Practicum	6
MDAS 2990	Capstone	1

TOTAL PROGRAM REQUIREMENTS   42

Medical Assistant Diploma students are required to obtain a C or higher on all MDAS courses and HEAL 1101.

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HEALTH & EDUCATION

MEDICAL CODING SPECIALIST

Delivery: Fully online, a few options for in person and/or hybrid classes

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

AWARDS
Medical Coding Specialist A.A.S. Degree . . . . .60 cr.
Medical Coding Specialist Diploma . . . . 39 cr.
Medical Coding Specialist Certificate * . . . . 13 cr.
Not Financial Aid eligible

MAJOR DESCRIPTION
Medical Coding Specialist A.A.S. Degree: prepares students for an entry-level professional fee medical coding position as well as prepares the student with skills to advance within the healthcare system. These positions are often offered by physician and non-physician practitioner clinics, acute care hospitals, third party payers, or consulting firms with a need for a medical coder.

The student will have working knowledge of healthcare law and a full understanding of the need to protect patient privacy. Our program utilizes a simulated electronic health record designed with industry standards which facilitates practice in abstracting patient information.

Upon completion of the A.A.S. degree students can code both procedure and diagnosis and are ready to take the American Academy of Professional Coder Certified Professional Coder examination, which is proctored at DCTC. Students will have Leadership knowledge and the communication skills necessary for leadership positions.

Medical Coding Specialist Diploma: prepares students for an entry-level professional fee medical coding position. These positions are often offered by physician and non-physician practitioner clinics, acute care hospitals, or third-party payers. The student will have working knowledge of healthcare law and a full understanding of the need to protect patient privacy. Our program utilizes a simulated electronic health record designed with industry standards which facilitates practice in abstracting patient information.

Upon completion of the diploma students can code both procedure and diagnosis and are ready to take the American Academy of Professional Coder Certified Professional Coder examination.

Medical Coding Specialist Certificate: designed for healthcare employees who have experience in the medical coding revenue cycle, and they wish to gain enough knowledge and practice in coding to sit for the American Academy of Professional Coders, Certified Professional Coder (CPC) exam. This program is designed as well for employers who would like to have employees become certified coders and provide the funding for this education as part of their Corporate Compliance Program or part of employee benefits.

WORK ENVIRONMENT
Medical Coding Specialist have a variety of work environments which may include medical primary care offices, urgent care centers, emergency rooms, ambulatory surgical centers, independent diagnostic imaging centers, medical specialty centers, hospitals, third party payers, billing companies, medical consulting firms, or government agencies. Employers may offer 'work at home' programs.

POTENTIAL JOB TITLES
• Medical Coding Specialist
• Clinical Documentation Specialist
• Health Information Analyst
• Coding Analyst
• Medical Records Technician

SALARY DATA
See latest data at onetonline.org.
• Average Wage: $28.41/hour
• Top Earners: $37.14/hour

Holders of certifications, such as the Certified Professional Coder (CPC®) and Certified Outpatient Coder (COC®), command higher incomes. Something can be said for holding multiple credentials, as well. Holders of two AAPC credentials earned a median $66,198 in 2022 and those with three or more AAPC credentials earned a median $71,361. Visit www.aapc.com/tools/medical-coding-salary-survey for more information.

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

MEDICAL CODING SPECIALIST
A.A.S. DEGREE

This is a sample course sequence for a full-time student. All courses are not offered every semester. Please contact your program advisor regarding your academic plans.

First Year - Fall Semester   15 cr

ADMS1018	Basic Computer Applications	3
MCOD1045	Medical Terminology for Medical Coders	3
MCOD1051	Human Diseases	3
MCOD1361	Health Information Management Essentials	3
MCOD1400	Diagnostic Coding (ICD-10-CM)	3

First Year - Spring Semester   15 cr

MCOD1390	Intro to Pharmacology	2
MCOD1410	Procedure Coding (AMA CPT)	3
MCOD1430	Legal Principles of Health Information	3
HEAL1101	Anatomy & Physiology	4
PHIL1350	Medical Ethics	3

Second Year - Fall Semester   15 cr

MCOD1370	Medical Revenue Cycle	3
MCOD1380	Quality & Performance Improvements in Health Care	3
MCOD1421	Leadership in Health Care	3
MCOD1440	Advanced Coding	3
ENGL1150	Composition	3

Second Year - Spring Semester   15 cr

ADMS1285	Oral Business Communications & Job Seeking Skills	2
MCOD1451	Coding Capstone	4
COMS1020	Interpersonal Communication	3
	General Elective (MnTC Goal 3 **or** 4)	3
	General Elective (any MnTC area)	3

TOTAL PROGRAM REQUIREMENTS **60**

MEDICAL CODING SPECIALIST
DIPLOMA

This is a sample course sequence for a full-time student. All courses are not offered every semester. Please contact your program advisor regarding your academic plans.

First Year - Fall Semester   15 cr

ADMS1018	Basic Computer Applications	3
MCOD1045	Medical Terminology for Medical Coders	3
MCOD1051	Human Diseases	3
MCOD1361	Health Information Management Essentials	3
MCOD1400	Diagnostic Coding (ICD-10-CM)	3

First Year - Spring Semester   15 cr

MCOD1370	Medical Revenue Cycle	3
MCOD1390	Intro to Pharmacology	2
MCOD1410	Procedure Coding (AMA CPT)	3
MCOD1430	Legal Principles of Health Information	3
HEAL1101	Anatomy & Physiology	4

Second Year - Fall Semester   9 cr

ADMS1285	Oral Business Communications & Job Seeking Skills	2
MCOD1380	Quality & Performance Improvements in Health Care	3
MCOD1451	Coding Capstone	4

TOTAL PROGRAM REQUIREMENTS **39**

MEDICAL CODING SPECIALIST
CERTIFICATE

Not Financial Aid eligible

First Year - Fall Semester   6 cr

MCOD1410	Procedure Coding (AMA CPT)	3
MCOD1400	Diagnostic Coding (ICD-10-CM)	3

First Year - Spring Semester   7 cr

MCOD1051	Human Diseases	3
MCOD1451	Coding Capstone	4

TOTAL PROGRAM REQUIREMENTS **13**

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HEALTH & EDUCATION

NURSING ASSISTANT

Delivery: Daytime or Evening Classes

Start: Fall, Spring or Summer Session

AWARDS
Nursing Assisting Certificate. . . . . 4 cr.

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

Employment in this field typically requires successful completion of the NNAAP exam.

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
See latest data at onetonline.org.
• Average Wage: $18.11/hour
• Top Earners: $22.85/hour

ACCREDITATION
The Nursing Assistant program is accredited by the Minnesota Department of Health.

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

NURSING ASSISTANT
CERTIFICATE

First Year - Fall Semester	4 cr
HEAL1061 Nursing Assistant 4	
TOTAL PROGRAM REQUIREMENTS	*4*

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HEALTH & EDUCATION

PRACTICAL NURSING

Delivery: Daytime Classes

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

AWARDS
Practical Nursing Diploma . . . . 43 cr.

MAJOR DESCRIPTION
The program equips graduates with the knowledge and skill set to administer safe, ethical, patient-centered nursing care in traditional and alternative health care settings. The Practical Nurse (PN) role within the nursing process is taught through classroom learning, simulated client care, and instructor-supervised clinical experiences in health care settings.

Employment in this field typically requires successful completion of the NCLEX-PN licensing exam.

WORK ENVIRONMENT
Graduates of the Practical Nurse program must pass the NCLEX examination to become licensed. Licensed Practical Nurses (LPNs), provide direct patient care under the supervision of a registered nurse (RN), advanced practice nurse (APN), physician's 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
- Hospital Staff Nurse
- Charge Nurse
- Home Health Nurse
- Nursing Technician
- Office Nurse

SALARY DATA
See latest data at careerwise.minnstate.edu.
- Average Wage: $23.52/hour
- Top Earners: $29.77/hour

PROGRAM APPROVAL
The Practical Nursing program is approved by the Minnesota Board of Nursing.

Dakota County Techincal College Practical Nursing Program is accredited by the National League for Nursing Commission for Nursing Education Accreditation (NLN CNEA) located at 2600 Virginia Ave. NW, Washington, DC 20037. (202) 909-2526

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

PRACTICAL NURSING
DIPLOMA

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

First Semester		14 cr
HEAL1061	Nursing Assistant	4
HEAL1101	Anatomy and Physiology	4
HEAL1150	Health Career Mathematics	1
HEAL1501	Medical Terminology for Nursing	1
PSYC1350	Lifespan Development	4

Second Semester		15 cr
(Second application is required before starting this semester)		
PNSG1010	Foundations of Nursing Practice	4
PNSG1355	Pharmacology	3
PNSG1400	Adult Health I	4
PNSG1600	Clinical I	4

Third Semester		14 cr
PNSG1410	Adult Health II	4
PNSG1620	Clinical II	4
PNSG1755	Behavioral Health Concepts	2
PNSG1805	Maternal and Child Health	2
PNSG2001	Nursing Capstone	2

TOTAL PROGRAM REQUIREMENTS   43

Nursing students are required to obtain a C or higher in all PNSD and general education courses.

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HEALTH & EDUCATION

SPORT MANAGEMENT

Delivery: Majority of courses are offered daytime on campus, some online courses are offered

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

AWARDS

Sport Management A.S. Degree* . . . . .60 cr.

* The A.S. degree has a 2 + 2 agreement with Minnesota State University, Mankato. Contact Sara Woodward, sara.woodward@dctc.edu for more information.

MAJOR DESCRIPTION

The field of sport management focuses on the business side of sport, fitness, and recreation. Topics include sport ethics, marketing, management, and accounting. An exploration of career requirements and opportunities in sport management is included. Required coursework includes classes in sport management, business, and liberal arts and sciences. The A.S. degree option provides for transfer to a baccalaureate program for continued study, networking, and expanded career options. Learn the knowledge and skills that it takes to become a successful sport management professional.

WORK ENVIRONMENT

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

POTENTIAL JOB TITLES

- Coach
- Sport Instructor
- Officials
- Recreation Worker
- Recreation Supervisor
- Camp Counselor

SALARY DATA

See latest data at careerwise.minnstate.edu.
- Average Wage: $34.96/hour
- Top Earners: $49.23/hour

ADDITIONAL INFORMATION

Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

SPORT MANAGEMENT
A.S. DEGREE

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

First Year - Fall Semester		15 cr
EXER1000	Introduction to Human Performance Studies.	3
EXER1065	Psychology of Sport and Performance	3
COMS1015	Fundamentals of Public Speaking	3
ENGL1150	Composition I.	3
	MnTC Goal 10 (BIOL1110 recommended)	3

First Year - Spring Semester		16 cr
EXER1045	Organization and Management of Sport	3
ADMS1018	Basic Computer Applications	3
COMS1020	Interpersonal Communication	3
SOCY1110	Introduction to Sociology.	3
	MnTC Goal 3 (CHEM1500 recommended *)	4

Second Year - Fall Semester		15 cr
EXER2295	Social and Ethical Aspects of Sport	3
MATS1300	College Algebra.	4
PSYC1105	General Psychology	4
	MnTC Goal 8 (HUMA1100 *or* SPAN1300 recommended *).	4

Second Year - Spring Semester		14 cr
EXER2975	Practicum - Exercise and Sport Science	1
ACCT1010	Principles of Financial Accounting I.	4
ECON1100	Microeconomics	3
	MnTC Goal 1 (ENGL2000 recommended *)	3
	General Electives (MnTC Goal 6) *	3

TOTAL PROGRAM REQUIREMENTS 60

* It is recommended to complete the Minnesota Transfer Curriculum. Please work with an academic advisor or Sara Woodward for specific course selection.

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HEALTH & EDUCATION

VETERINARY TECHNICIAN

Delivery: Daytime Classes

Start: Fall and Spring Semester, Full-Time

AWARDS
Veterinary Technician A.A.S Degree . . . . 60 cr.

MAJOR DESCRIPTION
The veterinary technician's role is to provide professional health care in conjunction with the veterinarian. The duties of veterinary technicians shall be performed under the direction, supervision, and responsibility of veterinarians. These duties shall be accomplished in compliance with federal, state, and local laws. These duties shall not include diagnosing, prescribing, or performing surgery except where explicitly permitted by regulation. The veterinary technician must be knowledgeable in the care and handling of animals, their normal and abnormal life processes, medical and surgical nursing, anesthesiology, diagnostic imaging, and clinical laboratory procedures.

Employment in this field typically requires successful completion of the VTNE (Veterinary Technician National Exam) licensing exam.

WORK ENVIRONMENT
Veterinary technicians perform medical tests in a laboratory environment under the supervision of a licensed veterinarian. These tests are used to diagnose and treat illnesses in animals. They prepare tissue samples and take blood. They also clean and sterilize instruments. Typical working conditions include frequent contact with others while working within a team.

POTENTIAL JOB TITLES
- Registered Veterinary Technician (RVT)
- Veterinary Assistant
- Veterinary Nurse

SALARY DATA
See latest data at careerwise.minnstate.edu.
- Average Wage: $20.56/hour
- Top Earners: $23.26/hour

ACCREDITATION NOTICE
The Veterinary Technician program is accredited by the American Veterinary Medical Association (AVMA).

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

Admission qualifications:
- Rabies vaccination pre exposure series
- HESI assessment exam
- 2nd application

VETERINARY TECHNICIAN
A.A.S. DEGREE

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

First Year - Fall Semester		14 cr
BIOL1450	Animal Biology	4
COMS1020	Interpersonal Communication	3
ENGL1150	Composition I	3
HEAL1502	Medical Terminology	2
	General Elective (any MnTC area) *INDS1020 recommended*	2

First Year - Spring Semester *		14 cr
(Second application is required before starting this semester)		
PHIL1350	Medical Ethics	3
VTEC1001	Animal Care I	1
VTEC1100	Veterinary Technology Procedures	3
VTEC1110	Veterinary Laboratory Skills I	3
VTEC1120	Calculations for Veterinary Professionals	1
VTEC1200	Comparative Anatomy & Physiology	1
VTEC1210	Veterinary Pharmacology	2

Second Year - Fall Semester		12 cr
VTEC1002	Animal Care II	1
VTEC1220	Fundamentals of Veterinary Imaging	3
VTEC1230	Veterinary Laboratory Skills II	3
VTEC1240	Lab and Exotic Animal	2
VTEC1250	Veterinary Nursing Techniques	3

Second Year - Spring Semester		13 cr
VTEC1003	Animal Care III	1
VTEC2100	Animal Diseases and Nutrition	2
VTEC2110	Large Animal	3
VTEC2120	Anesthesia and Pain Management	3
VTEC2131	Vet Surgical Nursing & Dentistry	4

Second Year - Summer Session		7 cr
VTEC2970	Veterinary Technology Internship	6
VTEC2980	Capstone	1

TOTAL PROGRAM REQUIREMENTS   60

* 2nd application is required before starting the second semester.

Veterinary Technician students are required to obtain a C- or higher on all VTEC and general education courses.

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STEM

PROGRAMS OF STUDY

Biomedical Equipment Technology

Information Systems Management

Networking Administration

Software Development

STEM CAREERS

Careers in STEM (science, technology, engineering and math) are ideal for those with great attention to detail. Successful professionals see challenges as an opportunity to learn and thrive through creative problem-solving using inductive and deductive reasoning.

TRAITS OF THE TRADE:

- Self-disciplined with attention to detail
- Adept at using technology
- Curious

Unless otherwise specified, salary data is sourced from careerwise.minnstate.edu.
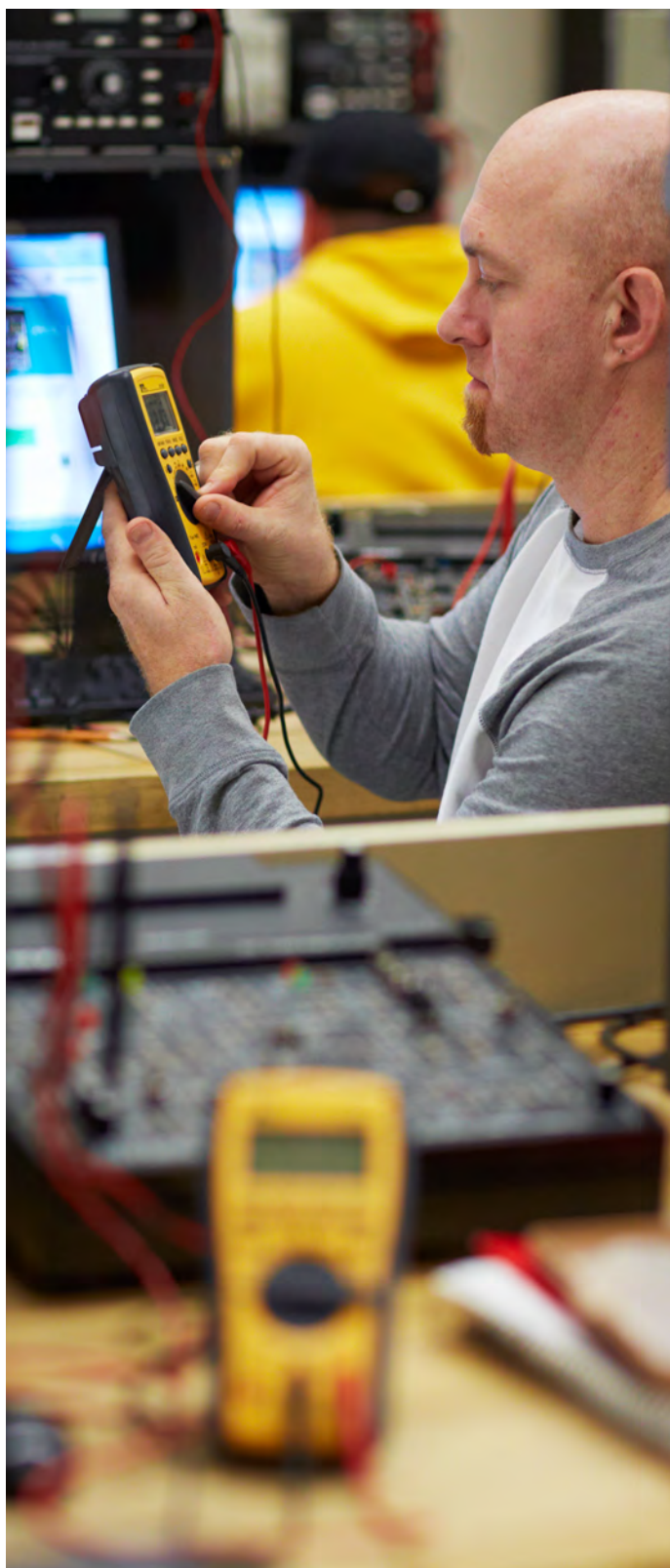
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M.Ed., College of St. Scholastica

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Information Systems

B.S., Tarkio College

STEM

BIOMEDICAL EQUIPMENT TECHNOLOGY

Delivery: In person with some online courses

Start: A.A.S., Spring 2024, Full-Time Recommended
Certificate, Spring 2025, Full-Time Recommended

AWARDS
Biomedical Equipment Technology A.A.S. Degree . . . . 63 cr.
Biomedical Equipment Technology Certificate . . . . 27 cr.

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

WORK ENVIRONMENT
BMETs find employment with hospitals, clinics, universities, equipment manufacturers and contract service providers. They generally work indoors and some travel may be required. BMETs work with medical professionals at all levels to assure the safe and effective use of sophisticated 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
See latest data at careerwise.minnstate.edu.
- Average Wage: $29.14/hour
- Top Earners: $38.23/hour

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

BIOMEDICAL EQUIPMENT TECHNOLOGY
A.A.S. DEGREE

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

First Year - Spring Semester		16 cr
BMET1113	Electrical Theory	3
BIOL1500	General Biology	4
HEAL1502	Medical Terminology	2
ISTC1010	Microcomputer Maintenance	3
MATS1300	College Algebra	4

First Year - Fall Semester		14 cr
BMET1122	Administrative Functions	4
BMET1530	Digital and Microprocessor	3
BMET2940	BMET Field Experience	1
ENGL1150	Composition I	3
ISTC1045	Network Systems I: Introduction to Networking	3

Second Year - Spring Semester		16 cr
BIOL1310	Introduction to Anatomy and Physiology	4
BMET1220	Medical Device Technology	4
BMET2110	Professional Skills	2
ISTC2006	Network Systems II: Routing and Switching Essentials	3
PHYS1050	Introduction to Physics	3

Second Year - Fall Semester		15 cr
BMET1114	Wireless Communication	1
BMET2210	Biomedical Instrumentation I	4
BMET1231	Biomedical Instrumentation II	4
ISTC2011	Network Systems III: Scaling Networks	3
COMS1020	Interpersonal Communication	3

Third Year - Spring Semester		2 cr
BMET2970	Internship	2

TOTAL PROGRAM REQUIREMENTS   63

BIOMEDICAL EQUIPMENT TECHNOLOGY
CERTIFICATE

This is a suggested sample course sequence.
Please contact your program advisor regarding your academic plans.
This certificate is designed for students with a degree in Electronics.

First Year - Spring Semester		12 cr
BIOL1310	Introduction to Anatomy and Physiology	4
BMET1220	Medical Device Technology	4
BMET2110	Professional Skills	2
HEAL1502	Medical Terminology	2

First Year - Fall Semester		13 cr
BMET1114	Wireless Communication	1
BMET1122	Administrative Functions	4
BMET2210	Biomedical Instrumentation I	4
BMET1231	Biomedical Instrumentation II	4

Second Year - Spring Semester		2 cr
BMET2970	Internship	2

TOTAL PROGRAM REQUIREMENTS   27

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STEM

INFORMATION SYSTEMS MANAGEMENT

Delivery: Daytime and Evening Classes

Start: Fall Semester only, Daytime, Full-time (recommended)

Start: Fall or Spring Semester, Evenings, Part-time

AWARDS

Information Systems Management A.A.S. Degree . . . . 69 cr.

Information Systems Management Diploma . . . . 60 cr.

MAJOR DESCRIPTION

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

WORK ENVIRONMENT

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

POTENTIAL JOB TITLES

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

SALARY DATA

See latest data at onetonline.org.

- Average Wage: $28.55/hour
- Top Earners: $37.94/hour

ADDITIONAL INFORMATION

Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

INFORMATION SYSTEMS MANAGEMENT
A.A.S. DEGREE

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

First Year - Fall Semester		15 cr
ENGL1150	Composition I	3
ISTC1015	Supporting Business Applications	3
ISTC1030	Operating Systems I	3
ISTC1045	Network Systems I: Introduction to Networking	3
COMS1020	Interpersonal Communication	3

First Year - Spring Semester		17 cr
ISTC1001	Introduction to Information Systems Mgmt †.	2
ISTC1010	Microcomputer Maintenance	3
ISTC1033	Operating Systems II	3
ISTC1050	Database Systems	3
ISTC1061	Intro to IT Security	3
ISTC1100	Business Communications	3

Second Year - Fall Semester		18 cr
ISTC1230	System Analysis and Design	3
ISTC1300	Introduction to Programming	3
ISTC2035	Operating System III	3
ISTC2066	Firewalls	3
MATS1251	*or* MATS1240 *or* MATS1300 *or* PHIL1250*	3
	General Elective (any MnTC area)	3

Second Year - Spring Semester		19 cr
ACCT1010	Principles of Financial Accounting	4
ISTC2040	Database Management	3
ISTC2100	Project Management (*or* ISTC2970 Internship)	3
ISTC2150	Virtualization, Storage, and Cloud Technologies	3
	General Elective (any MnTC area)	3
	Technical Elective (any ISTC)	3

TOTAL PROGRAM REQUIREMENTS   69

† *Course only offered once a year. Please see faculty advisor for schedule*

* *PHIL1250 is 3 credits. MATS1251, 1240 & 1300 are 4 credits. Students who complete MATS1251, 1240, or 1300 will get 1 credit towards their General Elective total.*

INFORMATION SYSTEMS MANAGEMENT
DIPLOMA

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

First Year - Fall Semester		15 cr
ENGL1150	Composition I	3
ISTC1015	Supporting Business Applications	3
ISTC1030	Operating Systems I	3
ISTC1045	Network Systems I: Introduction to Networking	3
COMS1020	Interpersonal Communication	3

First Year - Spring Semester		17 cr
ISTC1001	Introduction to Information Systems Mgmt	2
ISTC1010	Microcomputer Maintenance	3
ISTC1033	Operating Systems II	3
ISTC1050	Database Systems	3
ISTC1061	Intro to Security	3
ISTC1100	Business Communications	3

Second Year - Fall Semester		15 cr
ISTC1230	System Analysis and Design	3
ISTC1300	Introduction to Programming	3
ISTC2035	Operating System III	3
ISTC2066	Firewalls	3
	General Elective (any MnTC area)	3

Second Year - Spring Semester		13 cr
ACCT1010	Principles of Financial Accounting	4
ISTC2040	Database Management	3
ISTC2150	Virtualization, Storage, and Cloud Technologies	3
	Technical Elective (any ISTC)	3

TOTAL PROGRAM REQUIREMENTS 60

DAKOTA COUNTY
TECHNICAL COLLEGE

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STEM

NETWORKING ADMINISTRATION

Delivery: Daytime and Evening Classes

Start: Fall Semester only, Daytime, Full-time (recommended)

Start: Fall or Spring Semester, Evenings, Part-time

AWARDS

Networking Administration A.A.S. Degree . . . . 69 cr.
Networking Administration Diploma . . . . 60 cr.
PC Technician Certificate . . . . 30 cr.

MAJOR DESCRIPTION

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

WORK ENVIRONMENT

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

POTENTIAL JOB TITLES

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

SALARY DATA

See latest data at onetonline.org.

- Average Wage: $45.80/hour
- Top Earners: $62.08/hour

ADDITIONAL INFORMATION

Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

NETWORKING ADMINISTRATION
A.A.S. DEGREE

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

First Year - Fall Semester		15 cr
ENGL1150	Composition I	3
ISTC1015	Supporting Business Applications	3
ISTC1030	Operating Systems I	3
ISTC1045	Network Systems I: Introduction to Networking	3
COMS1020	Interpersonal Communication	3

First Year - Spring Semester		18 cr
ISTC1010	Microcomputer Maintenance	3
ISTC1033	Operating Systems II	3
ISTC1050	Database Systems	3
ISTC1061	Intro to IT Security	3
ISTC1100	Business Communications	3
	General Elective (any MnTC area)	3

Second Year - Fall Semester		18 cr
ISTC2006	Network Systems II: Routing and Switching Essentials	3
ISTC2011	Network Systems III: Scaling Networks	3
ISTC2035	Operating System III	3
ISTC2066	Firewalls	3
ISTC2071	Computer Forensics †	3
	General Elective (any MnTC area)	3

Second Year - Spring Semester		18 cr
ISTC2037	Operating Systems IV	3
ISTC2040	Database Management	3
ISTC2080	Cybersecurity †	3
ISTC2100	Project Management (*or* ISTC2970 Internship)	3
ISTC2150	Virtualization, Storage, and Cloud Technologies	3
MATS1251	*or* MATS1240 *or* MATS1300 *or* PHIL1250*	3

TOTAL PROGRAM REQUIREMENTS 69

† Course only offered once a year. Please see faculty advisor for schedule.

* PHIL1250 is 3 credits. MATS1251, 1240 & 1300 are 4 credits. Students who complete MATS1251, 1240, or 1300 will get 1 credit towards their General Elective total.

NETWORKING ADMINISTRATION
DIPLOMA

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

First Year - Fall Semester   15 cr

ENGL1150	Composition I	3
ISTC1015	Supporting Business Applications	3
ISTC1030	Operating Systems I	3
ISTC1045	Network Systems I: Introduction to Networking	3
COMS1020	Interpersonal Communication	3

First Year - Spring Semester   15 cr

ISTC1010	Microcomputer Maintenance	3
ISTC1033	Operating Systems II	3
ISTC1050	Database Systems	3
ISTC1061	Intro to IT Security	3
ISTC1100	Business Communications	3

Second Year - Fall Semester   15 cr

ISTC2006	Network Systems II: Routing and Switching Essentials	3
ISTC2011	Network Systems III: Scaling Networks	3
ISTC2035	Operating System III	3
ISTC2066	Firewalls	3
ISTC2071	Computer Forensics †	3

Second Year - Spring Semester   15 cr

ISTC2037	Operating Systems IV	3
ISTC2040	Database Management	3
ISTC2080	Cybersecurity †	3
ISTC2150	Virtualization, Storage, and Cloud Technologies	3
	General Elective (any MnTC area)	3

TOTAL PROGRAM REQUIREMENTS   60

† Course only offered once a year. Please see faculty advisor for schedule.

PC TECHNICIAN
CERTIFICATE

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

First Year - Fall Semester   12 cr

ISTC1015	Supporting Business Applications	3
ISTC1030	Operating Systems I	3
ISTC1045	Network Systems I: Introduction to Networking	3
COMS1020	Interpersonal Communication	3

First Year - Spring Semester   18 cr

ISTC1010	Microcomputer Maintenance	3
ISTC1033	Operating Systems II	3
ISTC1050	Database Systems	3
ISTC1061	Intro to IT Security	3
ISTC1100	Business Communications	3
	Technical Elective (any ISTC)	3

TOTAL PROGRAM REQUIREMENTS   30

DAKOTA COUNTY
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STEM

SOFTWARE DEVELOPMENT

Delivery: Daytime and Evening Classes

Start: Fall Semester only, Daytime, Full-time (recommended)

Start: Fall or Spring Semester, Evenings, Part-time

AWARDS

Software Development A.A.S. Degree . . . . 69 cr.
Software Development Diploma . . . . 60 cr.
Desktop Programming Certificate . . . . 27 cr.
Web Programming Certificate . . . . 27 cr.

MAJOR DESCRIPTION

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

WORK ENVIRONMENT

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

POTENTIAL JOB TITLES

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

SALARY DATA

See latest data at *onetonline.org*.
- Average Wage: $49.53/hour
- Top Earners: $79.08/hour

ADDITIONAL INFORMATION

Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

SOFTWARE DEVELOPMENT
A.A.S. DEGREE

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

First Year - Fall Semester		18 cr
ENGL1150	Composition I	3
ISTC1015	Supporting Business Applications	3
ISTC1030	Operating Systems I	3
ISTC1045	Network Systems I: Introduction to Networking	3
ISTC1300	Introduction to Programming	3
COMS1020	Interpersonal Communication	3

First Year - Spring Semester		18 cr
ISTC1033	Operating Systems II	3
ISTC1050	Database Systems	3
ISTC1061	Intro to IT Security	3
ISTC1100	Business Communications	3
ISTC1510	Web Programming I	3
	General Elective (any MnTC area)	3

Second Year - Fall Semester		18 cr
ISTC1230	System Analysis and Design	3
ISTC2110	Web Programming II	3
ISTC2320	.NET I †	3
ISTC2330	Cross Platform Mobile App Development †	3
	General Elective (any MnTC area)	3
	Technical Electives (Certificate Dependent)**	3

Second Year - Spring Semester		15 cr
ISTC2100	Project Management *or* ISTC2970 Internship	3
ISTC2610	Web Programming III †	3
MATS1251	*or* MATS1240 *or* MATS1300 *or* PHIL1250*	3
	Technical Electives (Certificate Dependent)**	6

TOTAL PROGRAM REQUIREMENTS **69**

† *Course only offered once a year. Please see faculty advisor for schedule.*

* *PHIL1250 is 3 credits. MATS1251, 1240 & 1300 are 4 credits. Students who complete MATS1251, 1240, or 1300 will get 1 credit towards their General Elective total.*

** *Students must choose one of the following certificates to complete the Software Development A.A.S.: Desktop Programming or Web Programming.*

SOFTWARE DEVELOPMENT
DIPLOMA

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

First Year - Fall Semester 15 cr

ENGL1150	Composition I	3
ISTC1015	Supporting Business Applications	3
ISTC1030	Operating Systems I	3
ISTC1045	Network Systems I: Introduction to Networking	3
ISTC1300	Introduction to Programming	3

First Year - Spring Semester 15 cr

ISTC1033	Operating Systems II	3
ISTC1050	Database Systems	3
ISTC1061	Intro to IT Security	3
ISTC1510	Web Programming I	3
COMS1020	Interpersonal Communication	3

Second Year - Fall Semester 15 cr

ISTC1230	System Analysis and Design	3
ISTC2110	Web Programming II	3
ISTC2320	.NET I †	3
ISTC2330	Cross Platform Mobile App Development †	3
	Technical Electives (Certificate Dependent)**	3

Second Year - Spring Semester 15 cr

ISTC1100	Business Communications	3
ISTC2610	Web Programming III †	3
	Technical Electives (Certificate Dependent)**	6
	General Elective (any MnTC area)	3

TOTAL PROGRAM REQUIREMENTS 60

† Course only offered once a year. Please see faculty advisor for schedule.

*** Students must choose one of the following certificates to complete the Software Development Diploma.: Desktop Programming or Web Programming.*

DESKTOP PROGRAMMING
CERTIFICATE

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

First Year - Fall Semester 3 cr

ISTC1300	Introduction to Programming	3

First Year - Spring Semester 3 cr

ISTC1510	Web Programming I	3

Second Year - Fall Semester 12 cr

ISTC2110	Web Programming II	3
ISTC2315	Java II †	3
ISTC2320	.NET I †	3
ISTC2330	Cross Platform Mobile App Development †	3

Second Year - Spring Semester 9 cr

ISTC2050	Data Structures †	3
ISTC2325	.NET II †	3
ISTC2610	Web Programming III †	3

TOTAL PROGRAM REQUIREMENTS 27

† Course only offered once a year. Please see faculty advisor for schedule.

WEB PROGRAMMING
CERTIFICATE

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

First Year - Fall Semester 6 cr

ISTC1300	Introduction to Programming	3
WEBD1650	Web Content I †	3

First Year - Spring Semester 6 cr

GRDT1016	Typography and Layout I	3
ISTC1510	Web Programming I	3

Second Year - Fall Semester 9 cr

ISTC2110	Web Programming II	3
ISTC2320	.NET I †	3
ISTC2330	Cross Platform Mobile App Development †	3

Second Year - Spring Semester 6 cr

ISTC2610	Web Programming III †	3
WEBD2695	UX/UI Design †	3

TOTAL PROGRAM REQUIREMENTS 27

† Course only offered once a year. Please see faculty advisor for schedule.

DAKOTA COUNTY
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TRANSPORTATION

PROGRAMS OF STUDY

Auto Body Collision Technology

Automotive Technician

GM Automotive Service Educational Program

Heavy Construction Equipment Technology

Heavy Duty Truck Technology

Mopar Career Automotive Program

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 your repairing and maintaining personal vehicles 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
- Moderate in math skills
- Natural communicators
- Independent
- Alert to their surroundings
- Attuned to all things on wheels

Unless otherwise specified, salary data is sourced from careerwise.minnstate.edu.

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TRANSPORTATION

AUTO BODY COLLISION TECHNOLOGY

* All students applying for the transportation programs are REQUIRED to attend a Tuesday Campus Visit

Delivery: Daytime Classes

Start: Fall Semester, Full-Time

AWARDS

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

MAJOR DESCRIPTION

Auto body collision technicians are the skilled professionals who accurately diagnose and repair collision-damaged vehicles. Repairing today's advanced passenger vehicles requires knowledge and training in metals, plastics, structural repairs and refinishing. Instruction involves classroom theory, demonstrations and hands-on repair of customer vehicles.

WORK ENVIRONMENT

Skilled graduates find rewarding 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

See latest data at careerwise.minnstate.edu.

- Average Wage: $29.09/hour
- Top Earners: $41.71/hour

ACCREDITATION

This program is accredited by the ASE Education Foundation.

ADDITIONAL INFORMATION

Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

AUTO BODY COLLISION TECHNOLOGY
A.A.S. DEGREE

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

First Year - Fall Semester		18 cr
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
ENGL1150 ENGL1200	Composition I *or* Technical Writing.	3

First Year - Spring Semester		18 cr
ABCT1212	Collision Repair Welding II	2
ABCT1214	Refinishing Preparation II	3
ABCT1216	Refinishing Application	5
ABCT1230	Auto Body Plastic Repair	2
	General Elective (any MnTC area) *PHIL1200 recommended*	3
COMS1020	Interpersonal Communication.	3

Second Year - Fall Semester		18 cr
ABCT2103	Damage Analysis, Estimating, & Customer Service. . .	2
ABCT2106	Collision Damage Repair/Replacement	6
ABCT2108	Unibody/Frame/Wheel Alignment I	4
ABCT2230	Body Mechanical and Air Conditioning	3
	General Elective (MnTC Goal 3 *or* 4) *BIOL1110 recommended*	3

Second Year - Spring Semester		18 cr
ABCT2100	Body Electrical.	2
ABCT2212	Unibody/Frame/Wheel Alignment II.	6
ABCT2240	Emerging Technologies.	2
ABCT2970	Autobody Internship	5
	General Elective (any MnTC area) *HIST1450 recommended*.	3

TOTAL PROGRAM REQUIREMENTS   72

AUTO BODY COLLISION TECHNOLOGY
DIPLOMA

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

First Year - Fall Semester		18 cr
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
ENGL1150 ENGL1200	Composition I *or* Technical Writing	3

First Year - Spring Semester		18 cr
ABCT1212	Collision Repair Welding II	2
ABCT1214	Refinishing Preparation II	3
ABCT1216	Refinishing Application	5
ABCT1230	Auto Body Plastic Repair	2
	General Elective (any MnTC area) *PHIL1200 recommended*	3
COMS1020	Interpersonal Communication	3

Second Year - Fall Semester		15 cr
ABCT2103	Damage Analysis, Estimating, & Customer Service	2
ABCT2106	Collision Damage Repair/Replacement	6
ABCT2108	Unibody/Frame/Wheel Alignment I	4
ABCT2230	Body Mechanical and Air Conditioning	3

Second Year - Spring Semester		13 cr
ABCT2100	Body Electrical	2
ABCT2212	Unibody/Frame/Wheel Alignment II	6
ABCT2970	Autobody Internship	5

TOTAL PROGRAM REQUIREMENTS 64

BODY TECHNICIAN
CERTIFICATE

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

Required Curriculum		28 cr
ABCT1111	Collision Repair Welding I	2
ABCT1120	Sheet Metal Repair	5
ABCT1142	Glass, Trim and Hardware	4
ABCT1212	Collision Repair Welding II	2
ABCT2100	Body Electrical	2
ABCT2106	Collision Damage Repair/Replacement	6
ABCT2108	Unibody/Frame/Wheel Alignment I	4
ABCT2230	Body Mechanical and Air Conditioning	3

TOTAL PROGRAM REQUIREMENTS 28

PAINT PREPARATION
CERTIFICATE

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

Required Curriculum		21 cr
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
ENGL1200 COMS1020	Technical Writing *or* Interpersonal Communication	3

TOTAL PROGRAM REQUIREMENTS 21

ESTIMATOR
CERTIFICATE

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

Required Curriculum		14 cr
ABCT1120	Sheet Metal Repair	5
ABCT2103	Damage Analysis, Estimating, & Customer Service	2
ABCT2108	Unibody/Frame/Wheel Alignment I	4
ENGL1200 COMS1020	Technical Writing *or* Interpersonal Communication	3

TOTAL PROGRAM REQUIREMENTS 14

DAKOTA COUNTY
TECHNICAL COLLEGE

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TRANSPORTATION

AUTOMOTIVE TECHNICIAN

* All students applying for the transportation programs are REQUIRED to attend a Tuesday Campus Visit

Delivery: Daytime Classes

Start: Fall or Spring Semester, Full-Time

AWARDS

Automotive Technician A.A.S. Degree. . . . . 72 cr.
Automotive Chassis Certificate . . . . 18 cr.
Automotive Electronics Certificate . . . . 18 cr.
Automotive Engine Performance Certificate . . . . 18 cr.
Automotive Powertrain Certificate . . . . 18 cr.

MAJOR DESCRIPTION

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

The curriculum follows the standards defined by the Automotive Service Excellence Education Foundation which ensures all training meets the highest standards. Students who graduate from this program will be able to work for independent repair facilities and dealerships in maintenance and light repair.

WORK ENVIRONMENT

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

POTENTIAL JOB TITLES

- Automotive Technician
- Automobile Service Advisor
- Automotive Repair Technician
- Automotive Engineer
- Service Manager
- Light Duty Maintenance Technician
- Fleet Repair Technician
- Lube Technician
- Tire Technician

SALARY DATA

See latest data at careerwise.minnstate.edu.
- Average Wage: $27.11/hour
- Top Earners: $38.52/hour

ACCREDITATION

This program is accredited by the ASE Education Foundation.

ADDITIONAL INFORMATION

Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

AUTOMOTIVE TECHNICIAN
A.A.S. DEGREE

This is a suggested course sequence. New students can start with any semester course sequence but must have AUTM1000 as part of their first semester coursework.

Please contact your program advisor regarding your academic plans.

First Year - First Course	1 cr

This course must be taken first before any other AUTM courses.

AUTM1000	Introduction to Automotive, Safety, and Pollution . . .1

First Year - Fall Semester	17 cr
AUTM2007	Intro to Chassis Systems. 2
AUTM2017	Automotive Brake Systems 3
AUTM2027	Automotive Suspension Systems. 3
AUTM2037	Automotive HVAC Systems 3
AUTM2047	Advanced Automotive Chassis Systems 3
ENGL1150 ENGL1200	Composition I *or* Technical Writing. 3

First Year - Spring Semester	17 cr
AUTM2157	Intro to Automotive Electricity and Electronics. 2
AUTM2167	Automotive Electronics and Computers 3
AUTM2177	Automotive Starting and Charging Systems 3
AUTM2187	Vehicle Communication Systems. 3
AUTM2197	Vehicle Accessory and Safety Systems 3
	General Elective (any MnTC area) *PHIL1200 recommended* 3

Second Year - Fall Semester	17 cr
AUTM2208	Introduction to Powertrain Systems 2
AUTM2218	Automotive Engine Fundamentals 3
AUTM2228	Automotive Transmission Fundamentals. 3
AUTM2238	Automotive Driveline Fundamentals. 3
AUTM2258	Advanced Automotive Powertrain 3
	General Elective (MnTC Goal 3) *BIOL1110 recommended* 3

Second Year - Spring Semester	20 cr
AUTM2354	Introduction to Engine Performance. 2
AUTM2364	Engine Mechanical and Fuel Systems. 3
AUTM2374	Engine Computer Control Systems. 3
AUTM2384	Engine Ignition and Emission Systems. 3
AUTM2394	Diesel, Hybrid, and Electric Drive 3
COMS1020	Interpersonal Communication. 3
	General Elective (any MnTC area) *SOCY1010 recommended* 3

TOTAL PROGRAM REQUIREMENTS   72

AUTOMOTIVE CHASSIS
CERTIFICATE

Please contact your program advisor regarding your academic plans.

First Year - Fall Semester	18 cr
AUTM1000	Introduction to Automotive, Safety, and Pollution . . .1
AUTM2007	Intro to Chassis Systems. 2
AUTM2017	Automotive Brake Systems 3
AUTM2027	Automotive Suspension Systems. 3
AUTM2037	Automotive HVAC Systems 3
AUTM2047	Advanced Automotive Chassis Systems 3
ENGL1150 ENGL1200	Composition I *or* Technical Writing. 3

TOTAL PROGRAM REQUIREMENTS   18

AUTOMOTIVE ELECTRONICS
CERTIFICATE

Please contact your program advisor regarding your academic plans.

First Year - Fall Semester	18 cr
AUTM1000	Introduction to Automotive, Safety, and Pollution . . .1
AUTM2157	Intro to Automotive Electricity and Electronics. 2
AUTM2167	Automotive Electronics and Computers 3
AUTM2177	Automotive Starting and Charging Systems 3
AUTM2187	Vehicle Communication Systems. 3
AUTM2197	Vehicle Accessory and Safety Systems 3
	General Elective (any MnTC area) *PHIL1200 recommended* 3

TOTAL PROGRAM REQUIREMENTS   18

AUTOMOTIVE ENGINE PERFORMANCE
CERTIFICATE

Please contact your program advisor regarding your academic plans.

First Year - Fall Semester		18 cr
AUTM1000	Introduction to Automotive, Safety, and Pollution	1
AUTM2354	Introduction to Engine Performance	2
AUTM2364	Engine Mechanical and Fuel Systems	3
AUTM2374	Engine Computer Control Systems	3
AUTM2384	Engine Ignition and Emission Systems	3
AUTM2394	Diesel, Hybrid, and Electric Drive	3
COMS1020	Interpersonal Communication	3

TOTAL PROGRAM REQUIREMENTS **18**

AUTOMOTIVE POWERTRAIN
CERTIFICATE

Please contact your program advisor regarding your academic plans.

First Year - Fall Semester		18 cr
AUTM1000	Introduction to Automotive, Safety, and Pollution	1
AUTM2208	Introduction to Powertrain Systems	2
AUTM2218	Automotive Engine Fundamentals	3
AUTM2228	Automotive Transmission Fundamentals	3
AUTM2238	Automotive Driveline Fundamentals	3
AUTM2258	Advanced Automotive Powertrain	3
	General Elective (MnTC Goal 3 *or* 4) *BIOL1110 recommended*	3

TOTAL PROGRAM REQUIREMENTS **18**

DAKOTA COUNTY
TECHNICAL COLLEGE
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TRANSPORTATION

GM AUTOMOTIVE SERVICE EDUCATION PROGRAM (ASEP)

* All students applying for the transportation programs are REQUIRED to attend a Tuesday Campus Visit

Delivery: Daytime Classes

Start: Fall Semester, Full-Time

AWARDS
Automotive Service (ASEP) A.A.S. Degree . . . . 82 cr.

MAJOR DESCRIPTION
Through DCTC's unique cooperation with General Motors and AC Delco, ASEP trains highly skilled service technicians for GM dealers and AC Delco Professional Service Centers. 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 graduates work as service technicians in General Motors dealerships, including Buick, Cadillac, Chevrolet, GMC or an AC Delco Professional Service Center.

POTENTIAL JOB TITLES
- Automotive Technician
- Automotive Repair Technician
- Automotive Service Advisor
- Automotive Engineer
- Automotive Service Manager
- Automotive Mechanic

SALARY DATA
See latest data at careerwise.minnstate.edu.
- Average Wage: $27.11/hour
- Top Earners: $38.52/hour

ACCREDITATION
This program is accredited by the ASE Education Foundation.

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

Students looking to enroll in the ASEP program are required to be sponsored by a dealership partner. Program faculty can provide resources to aid prospective students in finding a dealer sponsor.

GM AUTOMOTIVE SERVICE
A.A.S. DEGREE

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

First Year - Fall Semester		17 cr
ASEP1101	Automotive Fundamentals.	3
ASEP1102	Electrical and Fuel Systems	3
ASEP1201	Dealer Work Experience I.	8
BIOL1110	Environmental Science	3

First Year - Spring Semester		17 cr
ASEP1103	Driveability	3
ASEP1105	Heating and Air Conditioning	3
ASEP1202	Dealer Work Experience II	8
COMS1020	Interpersonal Communication.	3

First Year - Summer Session		14 cr
ASEP1104	Body Electronics	3
ASEP2110	Automatic Transmissions	3
ASEP2303	Dealer Work Experience III.	5
ENGL1150 ENGL1200	Composition I *or* Technical Writing.	3

Second Year - Fall Semester		17 cr
ASEP1204	Dealer Work Experience IV	8
ASEP2111	Engines.	3
ASEP2209	Driveline and Four-Wheel Drive	3
PHIL1200	Critical Thinking.	3

Second Year - Spring Semester		17 cr
ASEP1108	Brake Systems	3
ASEP1205	Dealer Work Experience V.	8
ASEP1212	Advanced Diagnostics/New Model Update	1
ASEP2107	Steering and Suspension	2
SOCY1010	Marriage and Family.	3

TOTAL PROGRAM REQUIREMENTS 82

DAKOTA COUNTY
TECHNICAL COLLEGE

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TRANSPORTATION

HEAVY CONSTRUCTION EQUIPMENT TECHNOLOGY

* All students applying for the transportation programs are REQUIRED to attend a Tuesday Campus Visit

Delivery: Daytime Classes

Start: Fall Semester, Full-Time

AWARDS
Heavy Construction Equip. Technology A.A.S. Degree . . . . 72 cr.
Heavy Construction Equip. Mechanic Diploma . . . . 64 cr.
Heavy Construction Equip. Maintenance Certificate . . . . . . 29 cr.

MAJOR DESCRIPTION
Coursework prepares students to succeed as well-trained, mechanically minded, hard-working technicians with heavy equipment dealers and contractors. Instruction involves classroom theory, live shop demonstrations, and repair of heavy equipment currently used in industry. Making repairs on actual equipment is vital to skill development.

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 Technician
• Construction Equipment Technician
• Field Service Technician
• Dealer Service Technician

SALARY DATA
See latest data at careerwise.minnstate.edu.
• Average Wage: $32.61/hour
• Top earners: $39.88/hour

ACCREDITATION
This program is accredited by the Associated Equipment Distributors Foundation (AED).

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

HEAVY CONSTRUCTION EQUIPMENT TECHNOLOGY
A.A.S. DEGREE

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

First Year - Fall Semester		17 cr
HCEM1102	General Shop Mechanics - Introduction	3
HCEM1110	Welding and Flame Cutting	2
HCEM1132	Heavy Duty Electrical	3
HCEM1140	Diesel Engine Overhaul I	4
HCEM1150	Applied Failure Analysis	2
ENGL1150 ENGL1200	Composition I *or* Technical Writing	3

First Year - Spring Semester		21 cr
HCEM1234	Heavy Duty Electronics	3
HCEM1246	Diesel Engine Overhaul II	3
HCEM1250	Brakes	2
HCEM1256	Diesel Engine Tune-up	3
HCEM1262	Preventative Maintenance	2
HCEM1271	CAT Basics Training	2
COMS1020	Interpersonal Communication	3
PHIL1200	Critical Thinking	3

Second Year - Fall Semester		17 cr
HCEM2115	Transmissions	4
HCEM2135	Hydraulics I	3
HCEM2177	Machine Electronics I	2
HCEM2238	Hydraulics II	3
HCEM2265	Differentials	2
BIOL1110	Environmental Science	3

Second Year - Spring Semester		17 cr
HCEM2145	Hydrostatic Systems	3
HCEM2225	Track Drive Systems	3
HCEM2256	Steering Systems	2
HCEM2260	Machine Electronics II	2
HCEM2271	CAT Advanced Training	2
HCEM2280	Climate Control	2
HIST1450	The History of Minnesota	3

TOTAL PROGRAM REQUIREMENTS   72

HEAVY CONSTRUCTION EQUIPMENT MECHANIC
DIPLOMA

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

First Year - Fall Semester   17 cr

HCEM1102	General Shop Mechanics - Introduction	3
HCEM1110	Welding and Flame Cutting	2
HCEM1132	Heavy Duty Electrical	3
HCEM1140	Diesel Engine Overhaul I	4
HCEM1150	Applied Failure Analysis	2
ENGL1150 ENGL1200	Composition I *or* Technical Writing	3

First Year - Spring Semester   21 cr

HCEM1234	Heavy Duty Electronics	3
HCEM1246	Diesel Engine Overhaul II	3
HCEM1250	Brakes	2
HCEM1256	Diesel Engine Tune-up	3
HCEM1262	Preventative Maintenance	2
HCEM1271	CAT Basics Training	2
COMS1020	Interpersonal Communication	3
PHIL1200	Critical Thinking	3

Second Year - Fall Semester   14 cr

HCEM2115	Transmissions	4
HCEM2135	Hydraulics I	3
HCEM2177	Machine Electronics I	2
HCEM2238	Hydraulics II	3
HCEM2265	Differentials	2

Second Year - Spring Semester   12 cr

HCEM2145	Hydrostatic Systems	3
HCEM2225	Track Drive Systems	3
HCEM2256	Steering Systems	2
HCEM2260	Machine Electronics II	2
HCEM2280	Climate Control	2

TOTAL PROGRAM REQUIREMENTS 64

HEAVY CONSTRUCTION EQUIPMENT MAINTENANCE
CERTIFICATE

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

First Year - Fall Semester   14 cr

HCEM1102	General Shop Mechanics - Introduction	3
HCEM1110	Welding and Flame Cutting	2
HCEM1132	Heavy Duty Electrical	3
HCEM1140	Diesel Engine Overhaul I	4
HCEM1150	Applied Failure Analysis	2

First Year - Spring Semester   15 cr

HCEM1234	Heavy Duty Electronics	3
HCEM1246	Diesel Engine Overhaul II	3
HCEM1250	Brakes	2
HCEM1256	Diesel Engine Tune-up	3
HCEM1262	Preventative Maintenance	2
HCEM1271	CAT Basics Training	2

TOTAL PROGRAM REQUIREMENTS 29

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TRANSPORTATION

HEAVY DUTY TRUCK TECHNOLOGY

All students applying for the transportation programs are REQUIRED to attend a Tuesday Campus Visit

Delivery: Daytime Classes

Start: Fall or Spring Semester, Full-Time

AWARDS
Heavy Duty Truck Technology A.A.S. Degree . . . . 78 cr.
Heavy Duty Truck Technology Diploma . . . . 70 cr.
Truck Fleet Maintenance Certificate . . . . 27 cr.

MAJOR DESCRIPTION
Students learn all aspects of heavy-duty truck repair and maintenance. The program focuses on class 7 and 8. Areas of instruction include electrical and electronic systems, emissions, steering/alignment, foundation brakes, air brakes and anti-lock brake systems. Students perform diesel engine troubleshooting, overhauls and tune-ups on electronic engines. Clutch, transmission, drive axle repair and overhaul are taught along with welding instruction, preventive maintenance, and HVAC. Students will be given the opportunity to become a MN certified commercial vehicle inspector.

WORK ENVIRONMENT
Major employers are truck fleet companies, dealerships and truck repair shops. Technicians generally work a standard 40-hour week in well-lighted and well-ventilated shops.

POTENTIAL JOB TITLES
- Diesel Mechanic
- Bus Mechanic
- Fleet Mechanic
- Heavy Duty Mechanic
- Truck Engine Technician
- Transportation Mechanic

SALARY DATA
See latest data at careerwise.minnstate.edu.
- Average Wage: $30.19/hour
- Top Earners: $39.31/hour

ACCREDITATION
This program is accredited by the ASE Education Foundation.

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

HEAVY DUTY TRUCK TECHNOLOGY
A.A.S. DEGREE

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

First Year - Fall or Spring Semester		19 cr
HDTT1100	Truck Technology Fundamentals	4
HDTT1106	Welding Procedures	2
HDTT1212	Preventive Maintenance	4
HDTT1217	Electrical Systems I	3
HDTT1219	Electrical Systems II	3
ENGL1200 ENGL1150	Technical Writing **or** Composition I	3

First Year - Fall or Spring Semester		22 cr
HDTT1102	Air Brake Systems	5
HDTT1104	Air Brake Electronics	2
HDTT1109	Fluid Power Systems	2
HDTT1215	Suspensions and Steering Systems	4
HDTT1223	Truck A/C	3
COMS1020	Interpersonal Communication	3
	General Elective (any MnTC area) *PHIL1200 recommended*	3

Second Year - Fall or Spring Semester		19 cr
HDTT2101	Drive Train I	6
HDTT2104	Drive Train II	4
HDTT2105	Drive Train III	2
HDTT2107	Diesel Fundamentals	3
HDTT2110	Diesel Fuel Systems	1
	General Elective (MnTC Goal 3) *BIOL1110 recommended*	3

Second Year - Fall or Spring Semester		18 cr
HDTT2213	Diesel Engine Fundamentals	4
HDTT2216	Diesel Electronics	3
HDTT2228	D.O.T. Certification	1
HDTT2230	Heavy Truck Industry Training*	2
HDTT2970	Internship	5
	General Elective (any MnTC area) *HIST1450 recommended*	3

TOTAL PROGRAM REQUIREMENTS   78

*This course is only offered online

HEAVY DUTY TRUCK TECHNOLOGY
DIPLOMA

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

First Year - Fall Semester		19 cr
HDTT1100	Truck Technology Fundamentals	4
HDTT1106	Welding Procedures	2
HDTT1212	Preventive Maintenance	4
HDTT1217	Electrical Systems I	3
HDTT1219	Electrical Systems II	3
ENGL1200 ENGL1150	Technical Writing *or* Composition I	3

First Year - Spring Semester		19 cr
HDTT1102	Air Brake Systems	5
HDTT1104	Air Brake Electronics	2
HDTT1109	Fluid Power Systems	2
HDTT1215	Suspensions and Steering Systems	4
HDTT1223	Truck A/C	3
COMS1020	Interpersonal Communication	3

Second Year - Fall Semester		19 cr
HDTT2101	Drive Train I	6
HDTT2104	Drive Train II	4
HDTT2105	Drive Train III	2
HDTT2107	Diesel Fundamentals	3
HDTT2110	Diesel Fuel Systems	1
	General Elective (any MnTC area) *BIOL1110 recommended*	3

Second Year - Spring Semester		13 cr
HDTT2213	Diesel Engine Fundamentals	4
HDTT2216	Diesel Electronics	3
HDTT2228	D.O.T. Certification	1
HDTT2970	Internship	5

TOTAL PROGRAM REQUIREMENTS 70

TRUCK FLEET MAINTENANCE
CERTIFICATE

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

First Year - Fall Semester		13 cr
HDTT1100	Truck Technology Fundamentals	4
HDTT1106	Welding Procedures	2
HDTT1212	Preventive Maintenance	4
HDTT1217	Electrical Systems I	3

First Year - Spring Semester		14 cr
HDTT1102	Air Brake Systems	5
HDTT1109	Fluid Power Systems	2
HDTT1215	Suspensions and Steering Systems	4
HDTT1223	Truck A/C	3

TOTAL PROGRAM REQUIREMENTS 27

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TRANSPORTATION

MOPAR CAREER AUTOMOTIVE PROGRAM

* All students applying for the transportation programs are REQUIRED to attend a Tuesday Campus Visit

Delivery: Daytime Classes

Start: Fall or Spring Semester, Full-Time

AWARDS
Mopar CAP A.A.S. Degree . . . . 72 cr

MAJOR DESCRIPTION
Mopar CAP students gain the training and fundamental knowledge they need to work on some of the hottest vehicles in the industry from the legendary Chrysler, Dodge, Jeep®, Ram, FIAT® and Alfa Romeo brands. Mopar CAP certification gives students a competitive edge and shows dealers they have the fundamental qualifications to be a successful automotive career at a Mopar dealership. With educators certified by Stellantis, Mopar CAP combines hands-on experience and classroom instruction.

WORK ENVIRONMENT
Mopar CAP graduates work as service technicians in Stellantis dealerships, including Chrysler, Dodge, Ram, Fiat, and Alfa Romeo.

POTENTIAL JOB TITLES
- Automotive Technician
- Automotive Repair Technician
- Automotive Service Advisor
- Automotive Engineer
- Automotive Service Manager
- Automotive Mechanic

SALARY DATA
See latest data at careerwise.minnstate.edu.
- Average Wage: $27.11/hour
- Top Earners: $38.52/hour

ACCREDITATION
This program is accredited by the ASE Education Foundation.

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

Students looking to enroll in the MOPAR CAP program are required to be sponsored by a dealership partner. Program faculty can provide resources to aid prospective students in finding a dealer sponsor.

MOPAR CAP
A.A.S. DEGREE

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

First Year - First Course		3 cr
MCAP1000	Introduction to MCAP*	3

First Year - Fall Semester		16 cr
ENGL1150 ENGL1200	Composition I **or** Technical Writing.	3
MCAP1101	Electronics	3
MCAP1102	Vehicle Communications	3
MCAP1103	Body Systems	3
MCAP1501	Dealer Work Experience 1	4

First Year - Spring Semester		16 cr
	General Elective (any MnTC area) *PHIL1200 recommended*	3
MCAP1201	Chassis	3
MCAP1202	HVAC	3
MCAP1203	Diesel	3
MCAP1502	Dealer Work Experience 2	4

First Year - Summer Session		3 cr
	General Elective (any MnTC area)	3

Second Year - Fall Semester		16 cr
COMS1020	Interpersonal Communications	3
MCAP1301	Engine Mechanical	3
MCAP1302	Engine Performance	3
MCAP1303	Hybrid and EV Systems	3
MCAP1503	Dealer Work Experience 3	5

Second Year - Spring Semester		16 cr
MCAP1401	Transmissions	3
MCAP1402	4WD and AWD Systems	3
MCAP1403	Differentials	3
MCAP1504	Dealer Work Experience 4	5
	General Elective (MnTC Goal 3) *BIOL1110 recommended*	3

TOTAL PROGRAM REQUIREMENTS **72**

*MCAP1000 must be taken before any other MCAP courses

DAKOTA COUNTY
TECHNICAL COLLEGE

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VISUAL ARTS & COMMUNICATION

PROGRAMS OF STUDY

Graphic Design Technology

Photography

Web Design

DESIGN

Our 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. Our Visual Arts & Communications 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

- Creative
- Attuned to shape and symmetry
- At ease with dimensional thinking
- Self-disciplined with attention to detail
- Computer savvy
- Inquisitive and individualistic

Unless otherwise specified, salary data is sourced from careerwise.minnstate.edu.

CONTACT US

FACULTY

Lisa Cline
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Photography

A.A., Winona State University
CPP, Professional Photographers of America

DeAnn Engvall
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Web and Graphic Design Technology

A.A.S., Dakota County Technical College
B.S., Mankato State University

Andi Fink
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Graphic Design

B.F.A., University of Missouri - Columbia
M.F.A., Minneapolis College of Art and Design

VISUAL ARTS & COMMUNICATION

GRAPHIC DESIGN TECHNOLOGY

Delivery: Daytime Classes

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

AWARDS

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

MAJOR DESCRIPTION

This program prepares students to explore, plan, design and produce visual solutions to graphic design communications problems. Graphic designers work to discover the most effective way to communicate in print, web, and interactive media. Students develop skills and knowledge in design concepts, typography, layout, illustration, animation, web content and computer software to create graphic designs for a variety of purposes.

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 range of organizations and businesses.

POTENTIAL JOB TITLES

- Advertising Designer
- Graphic Art Designer
- Graphic Artist
- Visual Designer
- Graphic Design Specialist
- Studio Designer
- Production Assistant
- Web Content Designer
- Motion Graphic Designer
- Animator

SALARY DATA

See latest data at careerwise.minnstate.edu.

- Average Wage: $31.16/hour
- Top Earners: $48.15/hour

ADDITIONAL INFORMATION

Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

GRAPHIC DESIGN TECHNOLOGY
A.A.S. DEGREE

Please contact your program advisor regarding your academic plans.

First Year - Fall Semester		14 cr
GRDT1001	Technical Foundations	2
GRDT1016	Typography and Layout I	3
GRDT1030	Graphic Design Fundamentals †	3
GRDT1410	Adobe Illustrator I †	3
WEBD1650	Web Content I †	3

First Year - Spring Semester		15 cr
GRDT1010	Adobe Photoshop I	3
GRDT1053	Design Drawing †	3
GRDT1430	Adobe InDesign I †	3
GRDT2420	Adobe Illustrator II †	3
WEBD2685	Web Page Construction I	3

First Year - Summer Session		6 cr
ENGL1150	Composition I	3
	General Elective (any MnTC area)	3

Second Year - Fall Semester		15 cr
WEBD1750	Web Content II	3
GRDT2016	Typography and Layout II †	3
GRDT2400	Adobe Photoshop II †	3
PHOT1100	Introduction to Photography	3
WEBD2681	Multimedia †	3

Second Year - Spring Semester		14 cr
GRDT1096 WEBD2711	Illustration Fundamentals † *or* CMS Websites †	2
GRDT1423 WEBD2690	Print Processes and Production † *or* Web Page Construction II †	3
GRDT2415 WEBD2695	Adobe InDesign II † *or* UX/UI Design †	3
GRDT2721	Graphic Design Career and Portfolio †	3
	General Elective (MnTC Goal 3 *or* 4)	3

Second Year - Summer Session		6 cr
COMS1020	Interpersonal Communication	3
	General Elective (any MnTC area)	3

TOTAL PROGRAM REQUIREMENTS   70

† Course only offered once a year. Please see faculty advisor for schedule.

DAKOTA COUNTY
TECHNICAL COLLEGE

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VISUAL ARTS & COMMUNICATION

PHOTOGRAPHY

Delivery: Fully Online

A.A.S. Start: Fall or Spring Semester, Full- or Part-Time

Diploma Start: Fall Semester only, Full-Time recommended

AWARDS
Professional Photography A.A.S. Degree . . . . .60 cr.
Photography Diploma. . . . . 32 cr.

MAJOR DESCRIPTION
Photography is a growing visual industry that requires highly trained professionals. Students will learn about major aspects of photography through hands-on application of image capture in the DCTC studios and on-location with a focus on workflow, lighting, portraiture, and products. Post-production in the Adobe Creative Suite is included along with foundational courses in video capture, color management and print production. Important entrepreneurial courses are included in our A.A.S. degree as well.

DEGREE OPTIONS
The Professional Photography A.A.S. Degree and Diploma programs prepare students to capture images in many different environments and then transform those images into client ready files or prints. The A.A.S. degree includes business courses preparing graduates for the current job market or photography business ownership.

CAMERA REQUIREMENTS
Students are required to own a DSLR (digital single lens reflex) camera. Speak with an instructor if you own a DSLR to confirm it meets the requirements, or for guidance in purchasing a camera.

WORK ENVIRONMENT
Graduates become photographers and digital imaging specialists, with the foundation needed to advance with the industry. Opportunities in new technologies and niche areas continue to grow as clients expect a more sophisticated variety of services.

POTENTIAL JOB TITLES
- Photojournalist
- Studio Photographer
- Sports Photographer
- Photography Business Owner
- Commercial Photographer
- Freelance Photographer
- Digital Production Assistant
- Printing Specialist
- Digital Asset Management Technician
- Digital Retoucher

SALARY DATA
See latest data at careerwise.minnstate.edu.
- Average Wage: $24.52/hour
- Top Earners: $37.38/hour

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

PROFESSIONAL PHOTOGRAPHY
A.A.S. DEGREE

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

First Year - Fall Semester		13 cr
ENGL 1150	Composition I	3
PHOT1050	Camera Skills	2
PHOT1110	Lighting Basics	2
PHOT1310	Adobe Lightroom	2
PHOT1320	Photoshop for Photographers	2
PHOT1420	Studio Portraits	2

First Year - Spring Semester		17 cr
ENTR1170	Introduction to Small Business	2
PHOT1550	DSLR Video	2
PHOT1610	Advanced Software	2
PHOT1651	Product Photography	2
PHOT1680	Photo Business Preparation	2
PHOT1830	Location Portraits	2
	General Elective (any MnTC area)	3
	Technical Elective (any PHOT, ENTR, BUSN, MKTC)	2

Second Year - Fall Semester		15 cr
ENTR1760	Selling and Negotiating for Small Business	3
PHOT1120	Natural Light Portraits	1
PHOT1510	Color Management	2
COMS1020	Interpersonal Communication	3
	General Elective (any MnTC area)	3
	Technical Elective (any PHOT, ENTR, BUSN, MKTC)	3

Second Year - Spring Semester		15 cr
ENTR1860	Business Plan Development	3
MKTC1000	Principals of Marketing	3
PHOT2560	Digital Printing	2
PHOT2651	Advanced Photo Projects	2
PHOT2710	Portfolio Development	2
	General Elective (MnTC Goal 3 *or* 4)	3

TOTAL PROGRAM REQUIREMENTS   60

PHOT courses are only offered once a year.

PHOTOGRAPHY
DIPLOMA

Diploma PHOT courses only start in the fall and full-time registration is recommended.
Please contact your program advisor regarding your academic plans.

First Year - Fall Semester		16 cr
PHOT1050	Camera Skills	2
PHOT1110	Lighting Basics	2
PHOT1120	Natural Light Portraits	1
PHOT1310	Adobe Lightroom	2
PHOT1320	Photoshop for Photographers	2
PHOT1420	Studio Portraits	2
PHOT1510	Color Management	2
ENGL 1150 COMS 1020	Composition I *or* Interpersonal Communication	3

First Year - Spring Semester		16 cr
PHOT1550	DSLR Video	2
PHOT1610	Advanced Software	2
PHOT1651	Product Photography	2
PHOT1680	Photo Business Preparation	2
PHOT1830	Location Portraits	2
PHOT2560	Digital Printing	2
PHOT2651	Advanced Photo Projects	2
PHOT2710	Portfolio Development	2

TOTAL PROGRAM REQUIREMENTS   32

DAKOTA COUNTY
TECHNICAL COLLEGE

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VISUAL ARTS & COMMUNICATION

WEB DESIGN

Delivery: Daytime or can be completed fully online

Start: Fall Semester, Part-Time

AWARDS
Web Design Certificate . . . . 20 cr.

MAJOR DESCRIPTION
As a one year, in-class or fully-online program, this certificate emphasizes web page architecture for the graphic designer or those just looking for basic web design skills. User interface design concepts, HTML, CSS and JavaScript as well as Content Management Systems (such as WordPress) are used to create web page structures. Image creation and optimization, basic animation in 2d and 3d environments, and audio and video editing for web content are also taught to create a complete set of web design skills.

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
See latest data at careerwise.minnstate.edu.
• Average Wage: $24.21/hour
• Top Earners: $38.05/hour

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

WEB DESIGN
CERTIFICATE

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

Fall Semester		9 cr
GRDT 1016	Typography and Layout I	3
WEBD1650	Web Content I †	3
WEBD2685	Web Page Construction I	3

Spring Semester		11 cr
WEBD1750	Web Content II.	3
WEBD2690	Web Page Construction II †	3
WEBD2695	UX/UI Design †	3
WEBD2711	CMS Websites †	2

TOTAL PROGRAM REQUIREMENTS 20

† Course only offered once a year. Please see faculty advisor for schedule.

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LIBERAL ARTS & SCIENCES

PROGRAMS OF STUDY

General Education

Minnesota Transfer Curriculum (MnTC)

Individualized Studies

PHILOSOPHY OF LIBERAL ARTS & SCIENCES

Dakota County Technical College incorporates Liberal Arts & Sciences into its curriculum because it firmly believes that higher education involves breadth as well as depth of study and because General Education achieves an important goal of the college's mission. The mission of Dakota County Technical College is to provide collegiate-level education for employment that will empower individuals to enhance their opportunities for career advancement and success in a global economy.

AWARD STATEMENT

Liberal Arts & Sciences is a requirement of all programs of 45 or more semester credits in length and is an integral part of the formal technical and 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 who need flexibility.

Hybrid: DCTC offers transferable general education courses in a blended format that includes both face-to-face and online components for increased flexibility.

For a current schedule of course offerings, visit, dctc.edu/go/courses.

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LIBERAL ARTS & SCIENCES

GENERAL EDUCATION

A.S. DEGREE REQUIREMENTS

An Associate in Science degree requires a minimum of 30 semester credits of general education as outlined below. See your program's page in this catalog or your academic advisor for program-specific requirements.

Required Courses		12-14 cr

Communication

ENGL1150	Composition I	3

Human Diversity

COMS1020	Interpersonal Communication	3

Mathematics (choose one course numbered over 1000)

MATS	any Math course (except 1000 and 1205)	3-4

Science (choose one course numbered over 1000)

BIOL	any Biology course (except 1200)	3-4
CHEM	any Chemistry course	4
PHYS	any Physics course	3

Elective Courses		16-18 cr

Students must complete a minimum of 16-18 elective credits from at least two of the following Goal Areas listed on the following Minnesota Transfer Curriculum pages:

Goal 2	Critical Thinking
Goal 5	History and the Social and Behavioral Sciences
Goal 6	Humanities and Fine Arts
Goal 8	Global Perspective
Goal 9	Ethical and Civic Responsibility
Goal 10	People and the Environment

TOTAL REQUIREMENTS 30

A.A.S. DEGREE REQUIREMENTS

An Associate in Applied Science degree requires a minimum of 15 credits of general education as outlined below. See the program page in this catalog for program-specific requirements.

Required Courses		9-10 cr

Communication

ENGL1150	Composition I	3

Human Diversity

COMS1020	Interpersonal Communication	3

Mathematics or Science (choose one course numbered over 1000):

BIOL	any Biology course (except BIOL1200)	3-4
CHEM	any Chemistry course	4
PHYS	any Physics course	3-4
MATS	any Math course (except 1000 and 1205)	3-4

Elective Courses		5-6 cr

Students may be required to complete additional credits beyond what is listed above. Choose from the courses listed on the following Minnesota Transfer Curriculum pages:

Goal 2	Critical Thinking
Goal 3	Natural Sciences
Goal 4	Mathematical/Logical Reasoning
Goal 5	History and the Social and Behavioral Sciences
Goal 6	Humanities and Fine Arts
Goal 8	Global Perspective
Goal 9	Ethical and Civic Responsibility
Goal 10	People and the Environment

TOTAL REQUIREMENTS 15

DIPLOMA REQUIREMENTS

Diplomas are awarded for successful completion of a program intended to provide students with employment skills. Diplomas vary from 31 to 72 semester credits. At least one-third of the credits shall be delivered by DCTC.

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

ENGL0150	English Writing Essentials	3 cr.
READ0110	College Reading Boost	1 cr.
READ0150	English Reading Essentials	3 cr.

Mathematical/Logic Reasoning

MATS0075	Number Sense	1 cr.
MATS0700	Foundations of College Mathematics	4 cr.
MATS0795	Support for College Algebra	2 cr.

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LIBERAL ARTS & SCIENCES

MINNESOTA TRANSFER CURRICULUM

The Minnesota Transfer Curriculum (MnTC) is the format in which general education is defined and accomplished within the public two- and four-year colleges and universities in Minnesota. Completion of an MnTC course at one institution enables a student to receive credit for lower division general education MnTC coursework upon admission to other Minnesota State colleges and universities as well as the University of Minnesota.

DCTC provides general education in the MnTC format and accepts MnTC courses from other Minnesota State 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 MnTC goal numbers.

MINNESOTA TRANSFER CURRICULUM COMPLETION

Completion of the Minnesota Transfer Curriculum (MnTC) may require additional courses beyond those required for the A.S., A.A.S., or diploma. If the intent is to transfer to another college, it is advisable to contact the transfer college for course selection recommendations and transfer admission process information. If a transfer college has not yet been identified, then use the Minnesota Transfer Curriculum courses listed on the following pages as a guide for course selection.

Successful completion of at least 40 credits within the accepted 10 goal areas as outlined below constitutes completion of the Minnesota Transfer Curriculum at DCTC. The goal area completion requirement is listed in italicized text after the description of each goal area. Notation of MnTC completion can be added to a student's transcript upon request after completion.

COMMUNICATIONS (GOAL 1)

To develop writers and speakers who use the English language effectively and who read, write, speak and listen critically. As a base, all students should complete introductory communication requirements early in their collegiate studies. *MnTC completion requires three courses. One must be ENGL1150 and one COMS.*

COMS1015	Fundamentals of Public Speaking	3 cr.
COMS1020	Interpersonal Communication	3 cr.
ENGL1150	Composition I	3 cr.
ENGL1200	Technical Writing	3 cr.
ENGL2000	English Composition II	3 cr.
ENGL1300	Intro to Creative Writing	3 cr.

CRITICAL THINKING (GOAL 2)

Students will be able to gather and use factual information to make logical assumptions, interpretations or connections. Critical thinking will be taught and used throughout the general education and technical curriculum to develop student's awareness of their own thinking and problem-solving procedures. *This goal can be met in one of the following three ways: 1) by completion of one course; 2) by completion of Goal 1 and a technical program; 3) by completion of the entire MnTC.*

BIOL1250	Biology of Women and Men	4 cr.
INDS1020	Critical Thinking for Student Success	2 cr.
PHIL1200	Critical Thinking	3 cr.
PHIL1500	Philosophy of Technology	3 cr.
PSYC1105	General Psychology	4 cr.

NATURAL SCIENCES (GOAL 3)

To improve students' understanding of natural science principles and of the methods of scientific inquiry, i.e., the ways in which scientists investigate natural science phenomena. By studying the problems that engage today's scientists, students learn to appreciate the importance of science in their lives and to understand the value of a scientific perspective. *MnTC Completion requires two courses of two different disciplines; at least one must be a lab course.*

Lab Sciences

BIOL1111	Environmental Science with Lab	4 cr.
BIOL1250	Biology of Women and Men	4 cr.
BIOL1310	Introduction to Anatomy & Physiology	4 cr.
BIOL1450	Animal Biology	4 cr.
BIOL1500	General Biology	4 cr.
BIOL2000	Anatomy & Physiology I	4 cr.
BIOL2010	Anatomy & Physiology II	4 cr.
BIOL2020	Microbiology	4 cr.
CHEM1500	Introduction to Chemistry	4 cr.
PHYS1050	Introduction to Physics	3 cr.
PHYS1100	College Physics I	4 cr.

Lab-like Sciences

BIOL1110	Environmental Science	3 cr.

MATHEMATICAL/LOGICAL REASONING (GOAL 4)

To increase students' knowledge about mathematical and logical modes of thinking. This will enable students to appreciate the breadth of applications of mathematics, evaluate arguments, and detect fallacious reasoning. *MnTC completion requires one course that is at least three credits.*

MATS1251	Statistics	4 cr.
MATS1300	College Algebra	4 cr.
PHIL1250	Introduction to Logic	3 cr.
MATS1240	Quantitative Reasoning	4 cr.
MATS1340	Math for Engineering Technology	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.
ENGL1625	Film Studies	4 cr.
HIST1100	History of United States to 1877	4 cr.
HIST1200	History of US from 1877 to Present	4 cr.
HIST1320	Civil War to Civil Rights	3 cr.
HIST1360	World History to 1500	4 cr.
HIST1361	World History Since 1500	4 cr.
HIST1400	American Environmental History	3 cr.
HIST1450	The History of Minnesota	3 cr.
PSYC1105	General Psychology	4 cr.
PSYC1200	Abnormal Psychology	3 cr.
PSYC1300	Child/Adolescent Psychology	3 cr.
PSYC1350	Lifespan Development	4 cr.
PSYC 1450	Death & Dying	2 cr.
SOCY1010	Marriage and Family	3 cr.
SOCY1110	Introduction to Sociology	3 cr.
SOCY1150	Race and Gender	2 cr.
SOCY1210	Social Issues Changing World	3 cr.
SOCY1400	Introduction to Criminal Justice	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.*

ARTS1301	Design Fundamentals	3 cr.
ARTS1310	History of Architecture	3 cr.
ENGL1300	Intro to Creative Writing	3 cr.
ENGL1401	Short Stories	3 cr.
ENGL1550	Introduction to Literature	3 cr.
ENGL1570	The Literature of Nature	2-3 cr.
ENGL1625	Film Studies	4 cr.
ENGL1630	Genre Film	1 cr.
ENGL1650	Greek Mythology	4 cr.
ENGL1675	Children's Literature	3 cr.
HUMA1100	Introduction to the Humanities	4 cr.
HUMA1125	The Humanities in Modern Minnesota	3 cr.
PHIL1003	Philosophy of Sex & Love	3 cr.
PHIL1100	Ethics	3 cr.
PHIL1300	Introduction to Philosophy	3 cr.
PHIL1350	Medical Ethics	3 cr.
PHIL1500	Philosophy of Technology	3 cr.
SPAN1300	Beginning Spanish Language and Culture	4 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.*

COMS1020	Interpersonal Communication	3 cr.
COMS1030	Intercultural Communication	3 cr.
HIST1200	History of the U.S. from 1877 to the Present	4 cr.
HIST1320	Civil War to Civil Rights	3 cr.
PHIL1200	Critical Thinking	3 cr.
PSYC1350	Lifespan Development	4 cr.
SOCY1150	Race and Gender	2 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.*

COMS1030	Intercultural Communication	3 cr.
HIST1360	World History to 1500	4 cr.
HIST1361	World History since 1500	4 cr.
HUMA1100	Introduction to the Humanities	4 cr.
SOCY1210	Social Issues Changing World	3 cr.
SPAN1300	Beginning Spanish Language and Culture	4 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.*

BIOL1250	Biology of Women and Men	4 cr.
ENGL1570	The Literature of Nature	2-3 cr.
PHIL1003	Philosophy of Sex & Love	3 cr.
PHIL1100	Ethics	3 cr.
PHIL1300	Introduction to Philosophy	3 cr.
PHIL1350	Medical Ethics	3 cr.
PHIL1500	Philosophy of Technology	3 cr.
SOCY1110	Introduction to Sociology	3 cr.
SOCY1400	Introduction to Criminal Justice	3 cr.

PEOPLE AND THE ENVIRONMENT (GOAL 10)

To improve students' understanding of today's complex environmental challenges. Students will examine the interrelatedness of human society and the natural environment. Knowledge of both biophysical principles and sociocultural systems is the foundation for integrative and critical thinking about environmental issues. *MnTC completion requires one course.*

ARTS1310	History of Architecture	3 cr.
BIOL1110	Environmental Science	3 cr.
BIOL1111	Environmental Science with Lab	4 cr.
BIOL1200	Biology and Society	3 cr.
HIST1400	American Environmental History	3 cr.

DAKOTA COUNTY
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LIBERAL ARTS & SCIENCES

INDIVIDUALIZED STUDIES

Delivery: Majority of courses are offered daytime on campus, some online and evening courses are offered

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

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

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

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

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

ADDITIONAL INFORMATION
Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.

INDIVIDUALIZED STUDIES
A.S. 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.

Required Curriculum		20 cr
INDS1002	Career and Educational Pathways Exploration 2	
	Technical Credits 18	

Required Courses		40 cr
SPEE1020	Interpersonal Communication 3	
ENGL1150	Composition I 3	
	Minnesota Transfer Curriculum* 34	

TOTAL PROGRAM REQUIREMENTS 60

* *Students must complete the Minnesota Transfer Curriculum (MnTC) as defined by the Minnesota State College and Universities System. Visit dctc.edu/mntc for specific MnTC requirements.*

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COURSE DESCRIPTIONS

AUTO BODY REPAIR

ABCT1111 Collision Repair Welding I   2

This course cover MIG welding and familiarization with oxyacetylene equipment.

ABCT1120 Sheet Metal Repair   5

This course covers the tools and procedures for repairing minor collision damage on metal body panels. *Prerequisites: ABCT1111*

ABCT1130 Refinishing Preparation I   2

This course covers refinishing safety, refinishing equipment, masking and surface preparation procedures. *Prerequisites: ABCT1142, 1120*

ABCT1142 Glass, Trim, and Hardware   4

This course covers the removal and installation of most of the components of a vehicle.

ABCT1150 Reconditioning and Detailing   2

This course cover the procedures of detailing and reconditioning a vehicle.

ABCT1212 Collision Repair Welding II   2

This course covers aluminum welding, resistance spot welding and other metal joining processes. *Prerequisites: ABCT1111*

ABCT1214 Refinishing Preparation II   3

This course covers the preparation and application procedures of automotive refinishing undercoat system. *Prerequisites: ABCT1120, 1130, 1142*

ABCT1216 Refinishing Application   5

This course covers the application procedures for automotive refinishing. *Prerequisites: ABCT1142, 1150, 1130, 1214*

ABCT1230 Auto Body Plastic Repair   2

This course covers the procedures of repairing automotive plastics. *Prerequisites: ABCT1130, 1142, 1214, 1216*

ABCT2100 Body Electrical   2

This course will focus on electrical troubleshooting and repair problems and procedures relating to collision electrical damage as well as pre and post vehicle scanning for advanced systems. *Prerequisites: ABCT1111, 1120, 1130, 1142, 1150, 1212, 1214, 1216, 1230*

ABCT2103 Damage Analysis, Estimating, and Customer Service   2

This course will contain and require handwritten and computer driven estimation procedures and understanding of estimating terminology with a strong emphasis on customer service. *Prerequisites: ABCT1111, 1120, 1130, 1142, 1150, 1212, 1214, 1216, 1230*

ABCT2106 Collision Damage Repair/Replacement   6

This course will focus on sheetmetal, unitized body and full frame sectioning and replacement of parts and components.

ABCT2108 Unibody/Frame/Wheel Alignment I   4

This course will focus on unibody, full frame repair and alignment using various alignment, measuring and pulling equipment and will also address wheel alignment procedures.

ABCT2212 Unibody/Frame/Wheel Alignment II   6

This course is a continuation of ABCT2108 with additional technical information and procedures. Students will be using frame repair equipment, various measuring equipment and applying all previous training on damaged vehicle repairs.

ABCT2230 Body Mechanical and Air Conditioning   3

This course will focus on auto collision related minor mechanical failures. The course will also focus on typical air conditioning procedures related to auto collision such as reclaim, recharge and replace parts as result of a collision contains subject matter related to mechanical repairs as a result of a collision.

ABCT2240 Emerging Technologies   2

This course covers emerging automotive technologies and how they will impact the collision repair field. *Prerequisites: ABCT1111, 1120, 1130, 1142, 1150, 1212, 1214, 1216, 1230, 2108*

ABCT2970 Autobody Internship   5

This course is required and can be for two to five credits. The intern will perform duties related to and to include duties that were performed and learned thus far. *Prerequisites: ABCT1100, 1111, 1120, 1130,1142, 1150, 1212, 1216, 1230, 2102, 2230, 2106, 2108*

ACCOUNTING

ACCT1010 Principles of Financial Accounting I   4

This course covers the fundamental accounting concepts and principles which are used in a business environment to provide reports on the economic condition of a sole proprietor organization. The focus will be on the accrual method of accounting, utilizing Generally Accepted Accounting Principles (GAAP) to analyze and record transactions. The ultimate objective is to understand the effects of these transactions in order to provide timely and relevant information in the form of financial statements. This course provides detailed information on topics of the accounting cycle, journalizing, posting, trial balances, adjusting entries, financial statements, cash reconciliations and internal control.

ACCT1013 Principles of Financial Accounting II   4

This course covers the accounting concepts and principles which are used in a business environment to provide reports on the economic

condition of a partnership and corporate organization. The focus will be on the accrual method of accounting, utilizing Generally Accepted Accounting Principles (GAAP) to analyze and record transactions. This course provides detailed information on topics of fixed assets, liabilities, forms of organization, investments, cash flow statements, and financial statement analysis. *Prerequisites: ACCT1010*

ACCT1100 Business Law and Ethics   3

This course is an introductory course in the principles of law as they apply to citizens and business and emphasizes the importance of ethics in business. This course is intended to give students a basic knowledge of business law and the decisions required which affect how business is conducted. Focus is given to the sources of law, legal reasoning, legal procedures, torts, contracts and e-contracts, the sale of goods under the uniform Commercial Code, unfair competition, consumer protection sales and lease contracts, and negotiable instruments.

ACCT1106 Accounting Mathematics   3

This course introduces students to the mathematical concepts and applications necessary for successful accounting careers. The focus is on business and financial operations with a strong emphasis on problem solving. Topics will include basic algebra, cash and trade discounts, markups and markdowns, simple and compound interest, present values and future values of annuities.

ACCT1206 Payroll Accounting   2

This course covers the various payroll procedures of federal laws pertaining to computation and payment of salaries and wages, and the reporting requirements for various state and federal agencies. Topics include coverage of the Federal Fair Labor Standards Act and other federal laws, preparation of journal entries, payroll registers, and employee earnings records, calculation of social security and federal income tax withholding, coverage of state and federal unemployment compensation taxes, preparation of federal and state payroll tax forms and reports, and knowledge of federal payroll tax deposit requirements. *Prerequisites: ACCT1010*

ACCT1306 Spreadsheets   3

This course provides instruction in the concepts, procedures, and application of electronic spreadsheets for accounting application. Topics include managing multiple-sheet spreadsheets, creating and using charts and graphs, creating complex formulas, and creating and printing reports. Course will prepare students for the Microsoft Specialist Certification exam.

ACCT1406 Income Tax   4

This course focuses of the Internal Revenue Code as it applies to individuals and businesses. Topics include foundations and concepts of tax law, income and deductions, calculating taxable income and income tax, and business income and deductions including depreciation. Preparation of tax forms on income tax software is an integral part of this course.

ACCT2000 Intermediate Accounting I   4

This course is part one of a two-part comprehensive study of accounting theory and concepts from the point of view of the Financial Accounting Standards Board (FASB) Statements of Financial Accounting Concepts, and the Statements of Financial Accounting Standards and generally accepted accounting principles (GAAP). Emphasis is placed on student understanding of the accounting cycle and complex accounting principles. Topics include creation and use of journal entries, end of period adjusting entries, completion of the accounting cycle and production of income statements, changes in owners' equity, balance sheets and cash flow statements. Other topics include cash and receivables, measurement and timing of revenues and expenses, and inventory cost measurement, methods and special valuation issues. *Prerequisites: ACCT1013*

ACCT2003 Intermediate Accounting II   4

This course is part two of a two-part comprehensive study of accounting theory and concepts from the point of view of the Financial Accounting Standards Board (FASB) Statements of Financial Accounting Concepts, and the Statements of Financial Accounting Standards and generally accepted accounting principles (GAAP). This course continues to place emphasis on student understanding of the accounting cycle and complex accounting principles. Topics include financial analysis tools; cost of acquisition, subsequent expenditures, depreciation, depletion, impairment, and disposal of property, plant and equipment; investments and long-term receivables; bonds and long-term liabilities; contributed capital; retained earnings and earnings per share (EPS); income taxes; postretirement benefits; and accounting for leases. Students will acquire practice in using the concept of the time value of money to determine the value of financial assets and liabilities.

ACCT2110 Managerial Accounting I   4

This course is an introduction to the fundamental concepts of planning, controlling, and decision making used by managers. Included are the principles and concepts used to account for materials, labor, and overhead in a manufacturing or service entity. Topics include job order costing, process costing, cost behaviors, and flexible budgets and performance analysis. *Prerequisites: ACCT1010*

ACCT2113 Managerial Accounting II   4

This course enables managers to use quantitative tools and techniques from an internal perspective to make accurate management decisions. Primary topics include cost-volume-profit analysis, differential cost analysis, master budgeting techniques, standard cost and variance analysis, and activity-based costing. *Prerequisites: ACCT2110*

ACCT2200 Accounting Computer Applications I   3

This course is an introduction to computerized accounting applications. Emphasis is placed on entering business transactions, the effect of generally accepted accounting principles (GAAP) on these transactions, and the formation of financial statements. Students will learn to prepare financial statements, setup both service and merchandise companies, update a chart of accounts, analyze transactions, make payroll entries, reconcile bank accounts, journalize and post adjusting and closing entries. At the end of this course, a certification exam is offered. After passing the exam, the student will achieve the designation of QuickBooks Certified User. *Prerequisites: ACCT1010*

ACCT2206 Fund/Nonprofit Accounting   3

This course covers the application of generally accepted accounting principles for non-profit organizations, with emphasis on state and

local governmental agencies. Topics include accounting for states, municipalities, and not-for-profit organizations with some federal government accounting. Additional focus includes accounting for private not-for-profit organizations such as colleges, universities, hospitals, and other health care providers. *Prerequisites: ACCT1013*

ADMINISTRATIVE SUPPORT

ADMS1010 Business English Skills   2

This course is an extensive, comprehensive study of English grammar, spelling, word usage, punctuation, number usage, capitalization and abbreviation rules, and proofreading.

ADMS1018 Basic Computer Applications   3

This course covers basic information on the history of computers, computer hardware and desktop application software. Students will learn the fundamentals of word processing (Word), spreadsheet (Excel), database (Access), and presentation applications (PowerPoint). Students will also be introduced to use of basic file management and the Internet.

ADMS1020 Office Procedures   4

This course covers the areas that develop skills in understanding and performing typical office tasks. Topics include communication, the changing workplace, handling mail, file management, understanding cultural diversity, customer service, and workplace etiquette.

ADMS1021 Keyboarding / Formatting   2

This course covers basic formatting for business documents, including letters, memos, reports, and tables. Skill development for speed and accuracy will also be included. *Prerequisites: A typing speed of 30 words per minute with five or fewer errors.*

ADMS1022 Office Support Event Management   3

This course covers the basic planning of business events such as meetings, conferences, and luncheons. Topics include all aspects of planning these events from scheduling, invitations, agendas, room management, set up, handouts, and catering needs. Students will also work to develop appropriate skills to take effective meeting minutes, create agendas, and continuous improvement in event management through development of surveys to gain feedback from participants.

ADMS1040 Integrated Office Skills   3

This course is designed to integrate and reinforce the skills and knowledge learned in previous courses in the program. Project emphasis will develop the students' awareness of work flow, chain of command, and creation/integration of office documents. The use of electronic tools and the integration of documents created in various Microsoft Office Suite programs is the primary focus of this course.

ADMS1041 Certification Basics - Outlook   3

This course covers training in the preparation for students to take the Microsoft Office Specialist Exam for Outlook.

ADMS1260 Certification Basics - Word   3

This course covers training in the preparation for students to take the Microsoft Office Specialist Exam for Word.

ADMS1265 Certification Basics - Excel   3

This course covers training in the preparation for students to take the Microsoft Office Specialist Exam for Excel.

ADMS1275 Certification Basics - PowerPoint   3

This course covers training in the preparation for students to take the Microsoft Office Specialist Exam for PowerPoint.

ADMS1285 Oral Business Communications and Job Seeking Skills   2

This course covers the development of oral communication skills in the following areas: one-to-one communication, oral presentations to groups, use of MS PowerPoint in presentations and student evaluation of speeches. Students will also learn successful employment interview strategies as well as how to find various job leads, write a successful resume and cover letter.

ADMS1290 Written Business Communications   2

This course covers the process of communication, including writing techniques and strategies. Students learn by completing a range of writing exercises and critical thinking cases. Specific applications focus on letter and memorandum writing and formal and informal reports. Communication skills are emphasized along with e-mail usage.

ARCHITECTURE

ARCT1000 Architectural Technology Studio I   5

This course provides the beginning architectural technology students with the fundamental tools and knowledge of drawing techniques. Emphasis will be placed on reading architectural drawings and understanding drawing conventions and graphic standards. A foundation of software tools used throughout the program will be introduced.

ARCT1020 Methods and Materials I   3

This course will introduce the beginning architectural technology or interior design student to the properties and applications of common, as well as new and sustainable residential building materials. This class will cover materials and methods such as: current sustainable practices in home building, wood stud construction, window installation, roofing, foundations, flashing, etc. These materials and construction methods will then be applied in the Studio I projects.

This course is cross-listed with IDES1020

ARCT1108 Computer Drafting I   3

This course will introduce students to a computer aided design (CAD) workflow using AutoCAD. Fundamental concepts, commands, and best practices will be taught via self paced drafting exercises that emphasize a hands-on approach to learning. *Prerequisites: ARCT1108*

ARCT1208 Computer Drafting II   3

This course introduces the student to AutoDesk Revit Software. There is an emphasis on BIM workflow and basic to intermediate modeling techniques. The student will develop intermediate CAD and BIM techniques to develop construction drawings. This knowledge can then be applied to projects in concurrent and future projects.

ARCT1500 Architectural Technology Studio II   5

This course will guide students through a condensed project timeline for a residential addition. Building on skills acquired in studio I, students will walk through pre-design and programming, schematic design, design development, to light construction documents. *Prerequisite: ARCT1000. Corequisites: ARCT1540, 1208.*

ARCT1520 Building Codes and Regulations   3

The goal of this class is to provide you with a fundamental understanding of the International Building Code (IBC), the Americans with Disabilities Act and Energy Codes. The class emphasizes Health, Safety, Welfare (HSW) topics such as: building codes, fire codes, accessibility issues, and environmental issues. *Prerequisites: Prior to, or currently enrolled in, ARCT1500, ARCT1207 and ARCT1540.*

This course is cross-listed with IDES1520

ARCT1540 Methods and Materials II   3

This course will examine the characteristics and properties of common, as well as new and sustainable, commercial building materials such as: concrete materials, formwork, reinforcement, steel frame construction, lightweight steel framing, metals, curtainwalls, etc. These methods and materials, including sustainable principles, will be applied to Studio II projects. *Corequisite: ARCT1500*

ARCT2000 Mechanical and Electrical Systems   3

This course will introduce the student to electrical/lighting, plumbing, HVAC, and fire protection. The course will examine the integration of various building systems into building design and look at energy efficiency and other means of contributing to a building's sustainability.

ARCT2020 Building Structures   3

This course is intended to provide an architectural technician with the knowledge necessary to work and communicate effectively with a structural engineer for coordination purposes. A fundamental review of statics and the flow of forces through a structure will be studies as well as the stresses placed on members by various forces.

ARCT2101 Architectural Studio III   5

Students prepare architectural drawings for multi-story commercial buildings. This course builds upon the students' architectural technology skills as they prepare construction drawings, schematic drawings, and design drawings for more complex buildings. Content from prior courses and sustainability will be integrated into comprehensive studio projects.

ARCT2108 Computer Drafting III   3

This course provides students with fundamental knowledge of industry-standard software programs beyond drafting and modeling representation. Bluebeam will be a focus as well as Sketch Up and Adobe Photoshop and inDesign as used in a typical Architecture practice. *Prerequisites: ARCT1208*

This course is cross-listed with IDES 2188

ARCT2200 Architectural Studio IV   5

This course provides an opportunity for the student to demonstrate previously-learned architectural technology skills by independently preparing computer-aided design working drawings of a small commercial project. Students will incorporate the completed drawings into their portfolios for internship interviews with future employers. *Prerequisites: ARCT2101*

ARCT2970 INTERNSHIP: Architecture Technology   1

This course is taught through a professional internship to facilitate the transition from school to a working environment. Internship will begin with job seeking and interviews for those note already in a qualifying position. Upon acceptance of an internship, the internee will begin produce work in a professional design office workplace. The internship coordinator will visit with supervisors to complete an evaluation form.

ARTS

ARTS1301 Design Fundamentals   3

This course covers the elements and principles of design: line, shape and form, space, texture, color and balance, proportion and scale, unity and harmony, and emphasis, in two dimensional and three dimensional formats through application. Color will be a focus, including the study of hue, saturation, and intensity, and how color affects people demonstrated through project work.

Meets MnTC Goal 6

ARTS1310 History of Architecture   3

This course will cover architectural history from prehistoric through the 20th century. The course will not only look at who designed the buildings, but will also look at examples of how they were built and issues that shaped them. Beginning with the earliest man made shelters and ending with the issues influencing current architectural design, the course will introduce students to different ways of seeing architecture and the built environment as cultural artifacts.

Meets MnTC Goals 6 & 10

ARTS1550 Art History, Renaissance to Modern   3

This introductory course gives students a deeper appreciation and knowledge of Western art and the cultures that created it. This course focuses on the fascinating changes that occurred in the Italian Renaissance and continues through to modern artists and influences of the 20th century.

Meets MnTC Goals 6

ASEP

ASEP1101 Automotive Fundamentals   3

Students will learn the basic automotive skills needed to maintain GM vehicles. Use of Service Information (SI) will also be covered. Instruction and GM certification in the General Motors Specialized Electronic Training (GM-SET) is also a part of this course.

ASEP1102 Electrical and Fuel Systems   3

Examining and testing batteries, charging, and starting systems. Proper testing methods using GM equipment will be stressed. Ignition and emission controls will be examined.

ASEP1103 Driveability   3

A thorough examination of automotive micro-processors, sensors and actuator operation. Proper operation of ignition systems and fuel systems will be examined. The use of Tech to Win and GPS2 scan tools will be covered. Lab scopes and 5 gas analyzers will be used. *Prerequisites: ASEP1101, 1102; or instructor approval*

ASEP1104 Body Electronics   3

Diagnose automotive electrical accessories. Examine GM vehicle safety systems. Advanced electronics will be examined. *Prerequisites: ASEP1101, 1102, 1103; or instructor approval.*

ASEP1105 Heating And Air Conditioning   3

This course is a study of the theory, operation, maintenance and repair of GM heating and air conditioning systems. Students will examine controls, actuators and A/C sensors as well as manual and automatic A/C systems. Reclaiming and recycling of R-134A and R-1234YF will be performed. *Prerequisites: ASEP1101, 1102*

ASEP1108 Brake Systems   3

This course covers theory and practice of servicing brake systems on General Motor's vehicles. Systems will include disc/drum brakes, brake boost systems, hydraulic systems and electronic brake controls. *Prerequisites: ASEP1101*

ASEP1201 Dealer Work Experience I   8

This is on-the-job training at a GM dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college's ASEP staff and ASEP coordinator at the dealership. *Prerequisites: Enrollment in GM ASEP and successful completion of the previous semester.*

ASEP1202 Dealer Work Experience II   8

This is on-the-job training at a GM dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college's ASEP staff and ASEP coordinator at the dealership. *Prerequisites: Enrollment in GM ASEP and successful completion of the previous semester.*

ASEP1204 Dealer Work Experience IV   8

This is on-the-job training at a GM dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college's ASEP staff and ASEP coordinator at the dealership. *Prerequisites: Enrollment in GM ASEP and successful completion of the previous semester.*

ASEP1205 Dealer Work Experience V   8

This is on-the-job training at a GM dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college's ASEP staff and ASEP coordinator at the dealership. *Prerequisites: Enrollment in GM ASEP and successful completion of the previous semester.*

ASEP1212 Advanced Diagnostics/New Model Update   1

Students will explore the latest General Motors technology operation, diagnostics and service. *Prerequisites: ASEP1101, 1102, 1103, 1104*

ASEP2107 Steering and Suspension   2

Topics covered in this course will include operation, service and diagnosis of General Motors vehicles chassis and steering systems. Alignment procedures and processes will be stressed.

ASEP2110 Automatic Transmissions   3

Students will learn to diagnose automatic transmission issues and perform repairs. Front wheel drive and all wheel drive transaxles as well as rear wheel drive transmissions will be covered. *Prerequisites: ASEP1101*

ASEP2111 Engines   3

Students will study the operation, diagnosis and repair of General Motors engines as used in cars and light trucks. Engines will be removed, disassembled, measured and re-assembled/reinstalled. *Prerequisites: ASEP1101, 1102*

ASEP2209 Driveline and Four-Wheel Drive   3

Students will learn the operation, diagnosis and repair of General Motors front and rear axles, driveaxles, prop shafts and 4-wheel drive systems.

ASEP2303 Dealer Work Experience III   5

This is on-the-job training at a GM dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college's ASEP staff and ASEP coordinator at the dealership. *Prerequisites: Enrollment in GM ASEP and successful completion of the previous semester.*

AUTOMOTIVE

AUTM1000 Introduction to Automotive, Safety, and Pollution   1

This course prepares students for the Automotive Technician Program. Students will register for manufacturer training and supplemental learning resources used in the program. Students will purchase tools and uniforms to be used while in the program. Students will be introduced to shop safety and pollution prevention procedures used in the industry.

AUTM2007 Intro to Chassis Systems   2

This course covers automotive industry fundamental knowledge and operations as well as basic automotive chassis, automotive brakes, and air conditioning, parts identification. various types of tools and test equipment and reference materials available within service information and your textbook.

AUTM2017 Automotive Brake Systems   3

This course includes basic principles of brakes, hydraulic system basics, disc and drum brakes, parking brakes, anti-lock brakes and power assist units. Emphasis will be placed on operation, diagnosis and repair of various types of braking systems.

AUTM2027 Automotive Suspension Systems   3

This course teaches suspension systems using leaf springs, coil springs, McPherson struts, and torsion bars. Steering systems using manual and power rack and pinion, recirculating ball steering gears. Alignment angles and their relationship to vehicle handling.

AUTM2037 Automotive HVAC Systems 3

This course covers the principles of air conditioning and types, diagnosis, testing, and repair of air conditioning systems. The course includes practical work on air conditioning systems such as evacuating, replacement of components, charging, recycling, and performance testing. Students will also test and diagnose automotive electronic heating and air conditioning control circuits.

AUTM2047 Advanced Automotive Chassis Systems 3

This course includes advanced Chassis, Brake, and Air Conditioning repair. Advanced Chassis, Brake, and Air conditioning diagnostic procedures.

AUTM2157 Intro to Automotive Electricity and Electronics 2

This course introduces students to the fundamentals of automotive electrical and electronic systems. Students will learn about electrical theory and electrical diagnostic strategy using the DVOM. Students will learn about shop safety procedures, how to use vehicle service information, and how to use general shop tools and equipment as they relate to electrical/electronic service and repair.

AUTM2167 Automotive Electronics and Computers 3

This course covers automotive electrical and electronic fundamentals. Students will learn how to identify and interpret circuit wiring diagrams. Industry recognized procedures for repairing wiring harnesses, connectors, and terminals are demonstrated and practiced in this course. Operation, diagnosis, and repair of automotive series, parallel and relay-controlled circuits are studied using various types of tools and test equipment.

AUTM2177 Automotive Starting and Charging Systems 3

This course covers automotive batteries, starting and charging system theories, diagnosis and repair procedures using various types of tools and test equipment and reference materials.

AUTM2187 Vehicle Communication Systems 3

Students in this course will be exposed to complex automotive electronics and computer-controlled circuits. Operation, diagnosis, and repair of vehicle communication networks will be studied using various types of tools and test equipment.

AUTM2197 Vehicle Accessory and Safety Systems 3

This course covers advanced automotive electrical, electronic, and HVAC system diagnostic and repair procedures using various types of tools and test equipment.

AUTM2208 Introduction to Powertrain Systems 2

This course covers automotive industry fundamental knowledge and operations as well as basic automotive engine, automatic transmission, and manual drivetrain, parts identification. various types of tools and test equipment and reference materials available within service information and your textbook. This course also covers the maintenance of all Engine, Transmission and Drivetrain related components.

AUTM2218 Automotive Engine Fundamentals 3

This course covers the disassembly, measurements, repair and re-assembly of automotive engines. This includes cylinder head diagnosis and repair, valve train diagnosis and repair, and engine block diagnosis and repair.

AUTM2228 Automotive Transmission Fundamentals 3

This course covers the basic theory of automotive transmissions/ transaxles. This includes torque converter operations, planetary gears sets, clutch assemblies, bands, and hydraulic systems operations. Students will learn transmission/transaxle operations, diagnosis and repair.

AUTM2238 Automotive Driveline Fundamentals 3

This course covers current automotive clutch, manual transmission/ transaxle, transfer cases and differential used on late model vehicles. Students will learn diagnosis, repairs, and operation of each systems.

AUTM2258 Advanced Automotive Powertrain 3

This course includes: advanced automatic transmission and engine diagnostic procedures. Advanced repair of automatic transmissions and engines.

AUTM2354 Introduction to Engine Performance 2

This course introduces students to the fundamentals of engine performance. Students will learn about electrical theory and electrical diagnostic strategy using the DVOM. Students will learn about engine performance shop safety procedures, how to use vehicle service information, and how to use diagnostic tools including scan tools and oscilloscopes in troubleshooting engine performance concerns.

AUTM2364 Engine Mechanical and Fuel Systems 3

This course covers the operation and servicing techniques required to diagnose internal engine mechanical conditions affecting engine performance.

AUTM2374 Engine Computer Control Systems 3

This course covers the operation and servicing techniques required to diagnose and repair automotive computer system related concerns encountered on modern automobiles.

AUTM2384 Engine Ignition and Emission Systems 3

This course covers the operation and servicing techniques required to diagnose and repair ignition and emission control system related concern encountered on modern automobiles.

AUTM2394 Diesel, Hybrid, and Electric Drive 3

This course will focus on diesel, hybrid, and electric vehicle operation, diagnosis, and repair. Live work will be at the core of this course and will reinforce understandings obtained in prior courses.

AUTM2960 Skill Development: Auto Mechanics 1

The Skill Development course is used to help improve automotive understandings and to practice skills learned in other automotive program courses. Students get additional time with instructors to ask questions or get additional time on tasks they may need help with.

BIOLOGY

BIOL1110 Environmental Science 3

This course emphasizes the unique impact humans and industry have on our enviornment. It addresses the demands placed on the biosphere by the exploitation of natural resources and energy,

the creation of pollution and the disposal of waste. This course is interdisciplinary, combining concepts from the natural and physical sciences (e.g. biology, chemistry, ecology, geology, physics) with the social sciences (e.g. economics, politics, ethics, history) to present an understanding of how wise stewardship of earth's resources can result in the long-term sustainability of our shared environment.

Meets MnTC Goals 3 & 10

BIOL1111 Environmental Biology with Lab   4

This course emphasizes the fundamental concepts of ecology as it pertains to the impact of humans on their environment. It addresses the demands placed on the biosphere by the exploitation of natural resources and energy, the creation of pollution, and the disposal of waste. This course is interdisciplinary, combining concepts from the natural and physical sciences (e.g. biology, chemistry, geology, physics) with the social sciences (e.g. economics, politics, ethics, history) to present an understanding of the sustainable use of Earth's resources. The lab/field component includes application of concepts with an emphasis on observation, the scientific method, and analysis.

Meets MnTC Goals 3 & 10

BIOL1250 Biology of Women and Men   4

Students will focus on concepts related to women's and men's health. Topics covered will include anatomy and physiology of human reproductive systems, ethical issues in women's and men's health, formulating critical thinking skills in the face of new medical findings presented to society and biological concepts of common medical issues faced by women/men. Specific topics may include, menopause, prostate health, hair loss, mental health, pregnancy and current media issues in the face of health care experiments. Lab like experiences will be included in the teaching of these topics through simulations, case-studies and more.

Meets MnTC Goals 2, 3 & 9

BIOL1310 Introduction to Anatomy and Physiology   4

This lecture and laboratory-based course is designed for an introductory study of human organ systems (histology, integumentary, skeletal, muscular, nervous, endocrine, cardiovascular, respiratory, digestive, and urogenital) by the structure and function. Carefully check your program requirements for acceptability of this course. It does not replace the two course sequence of anatomy and physiology required for many advanced health programs.

Meets MnTC Goal 3

BIOL 1450 Animal Biology   4

This lecture and laboratory-based course surveys the four unifying principles of biology (evolutionary theory, cell theory, gene theory, and homeostasis) in the context of animal body systems. Content topics include cellular structure, function, and processes; histology; inheritance; biodiversity; natural selection; basic anatomical and directional terminology; and skeletal, muscular, nervous, cardiovascular, respiratory, and digestive systems. The lab component includes application of concepts with an emphasis on observation, the scientific method, and analysis. Dissection of individual organs and whole organisms may be included. This course provides a foundation for students pursuing veterinary-related careers as well as those in non-science majors.

Meets MnTC Goal 3

BIOL1500 General Biology   4

This course surveys the basic principles of biology. Content topics include fundamental concepts of chemistry, cellular structure and metabolism, inheritance, biodiversity, ecology, and evolution. The lab component includes design and execution of experiments with an emphasis on observation, the scientific method, and analysis and presentation of results. This course provides a foundation for students pursuing health-related careers as well as those in non-science majors.

Meets MnTC Goal 3

BIOL2000 Anatomy & Physiology I   4

This course is the first semester of a two-semester lab-science course intended for students pursuing careers in fitness and allied health fields. Human anatomy and physiology are studied using a body systems approach, with emphasis on the interrelationships between form and function at the gross and microscopic levels of organization. Homeostasis is an integrating theme throughout this course. Content topics include basic anatomical and directional terminology, fundamental concepts and principles of cell physiology, histology, and the integumentary, skeletal, muscular, and nervous systems. Dissection of individual organs and whole organisms may be included. *Prerequisites: BIOL1500 with a grade of C or better*

Meets MnTC Goal 3

BIOL2010 Anatomy & Physiology II   4

This course is the second semester of a two-semester lab-science course intended for students pursuing careers in fitness and allied health fields. Interrelationships between form and function at the gross and microscopic levels are studied using a body systems approach. Homeostasis is an integrating theme throughout this course. Content topics include immunity, metabolism, fluid balance, development, and the cardiovascular, hematopoietic, respiratory, lymphatic, digestive, urinary, and reproductive systems. Dissection of individual organs and whole organisms may be included. *Prerequisites: BIOL2000 with a grade of C or better*

Meets MnTC Goal 3

BIOL2020 Microbiology   4

This progressive course will focus on microbe classification, disease transmission, pathogenesis and the immune response. Bacterial isolation and identification are common laboratory practices covered. Emphasis will be on microorganisms that cause local and systemic disease in humans with consideration of treatment options as well as infection control and prevention strategies. This course is intended for nursing students and other students pursuing careers in allied health fields. *Prerequisites: BIOL1500 with a grade of C or better*

Meets MnTC Goal 3

BIOMEDICAL EQUIPMENT TECHNOLOGY

BMET 1113 Electrical Theory for Technicians   3

This course will combine AC and DC theory with a focus on safety and troubleshooting. The course will work with examples and labs

based on components and concepts that relate to what would be experienced by the biomedical technician.

BMET1114 Wireless Communication   1

The study of wireless technology used within the medical environment.

BMET1122 Administrative Functions   4

Introduces operations of a Healthcare Technology management department, requirements of regulatory agencies, and overall healthcare environment laws and standards.

BMET1220 Medical Device Technology   4

Study of medical equipment design and components. Course will also cover medical equipment safety and simple medical equipment technologies.

BMET1231 Biomedical Instrumentation II   4

Study of various advanced technologies used in the medical field. Areas of study will cover various test equipment, performing preventative maintenance and use of testing equipment for maintaining proper operation. *Prerequisites: BMET2210 or equivalent*

BMET1530 Digital and Micro Processor   3

Study of digital logic circuits and microprocessor systems.

BMET2110 Professional Skills   2

This course will consist of class lecture, practical exercises and reflective compositions, The student will focus on the professional skills necessary to thrive in the Healthcare Technology Management field.

BMET2210 Biomedical Instrumentation I   4

This course studies the various technologies in the medical care field. Areas of study cover the use of various test equipment, performing, preventive maintenance and the use of testing equipment for maintaining proper operation. *Prerequisites: BMET1220 or equivalent*

BMET2940 BMET Field Experience   1

Student will visit clinical sites within the Healthcare Technology management field to better understand the role of biomedical equipment technician.

BMET2970 Biomedical Equipment Technology Internship   2

Students will spend 120 hours at a clinical site within the Healthcare Technology management field. Observing and applying all the skills learned as a part of BMET program.

BREWING & BEER STEWARD TECHNOLOGY

BREW1000 Introduction to Brewing and Beer Steward   2

This course will focus on the history of beer and brewing, the main processing steps involved in beer brewing, identification and characteristics of a variety of beer styles and flavors, beer serving and freshness, main ingredients used in brewing beer, and societal impact and legal regulation of beer and brewing.

BREW1100 Science of Brewing and Fermentation   4

Students will learn the biological, chemical, and physical science related to brewing and the fermentation process.

BREW1200 Raw Materials and Brewing Process   4

In this course students will learn about the characteristics and variables related to the main ingredients used in the beer brewing process—water, barley/malt, hops, adjuncts, yeast, and other ingredients. The students will also learn more in-depth about the brewing process including equipment and procedures involved in wort production, fermentation, clarification, and filtration.

BREW1300 Beer Production and Quality Control   4

Students will gain more in-depth knowledge and hands-on experience of the brewing and beer production process. The course will cover process, procedures, and best practices for each step in the brewing process.

BREW1400 Packaging and Process Technology   3

In this course students will develop a basic knowledge of bottling, canning, and kegging beer emphasizing best practices for stability and shelf life. Students will also learn about draught systems, packaging containers, and materials used in the brewing industry and quality control tests and measurements used on finished beer. This course will also include operation, safety and maintenance of brewing equipment and technology including hydraulic pumps, filtration systems, and heating and refrigeration technology.

BREW2970 Internship   4

Brewing and Beer Steward Internship

BUSINESS MANAGEMENT

BUSN1000 Foundations of Management   3

Examine the background and theories of supervision and management. Ease the transition to management by gaining the knowledge and.skills necessary to be successful in a management role including planning, organizing, staffing, leading and controlling.

BUSN1010 Leadership   3

Become an effective leader in today's global business environment. Determine your leadership style and the implications of that style in work group performance. Incorporate ethical decision making, mission, vision and culture into a powerful leadership strategy. Enhance your ability to motivate and positively influence others in an increasingly diverse workforce. Model leadership behaviors and inspire, challenge, enable and encourage those around you toward a common purpose.

This course is cross-listed with ADMS1420

BUSN1020 Management Effectiveness   3

Develop habits to increase personal productivity and create and individual time management plan. Set priorities, delegate and

reduce time wasters and stressors. Explore strategies to improve time utilization in work groups. Learn practical tools to manage time and stress.

BUSN1030 Financial Management 2

Non-financial managers and supervisors will gain knowledge and skills necessary to make sound business financial decisions. Emphasis on the key financial statements, accepted accounting principles and budgeting.

BUSN 1031 Finance for Public and Private Sector Management 3

Non-financial managers and supervisors will gain knowledge and skills necessary to make sound financial decisions. Emphasis on the key financial statements, generally accepted accounting principles (GAAP) and budgeting for the public and private sector.

BUSN1040 Organizational Behavior 3

Organizational behavior (OB) is an interdisciplinary field drawing from numerous disciplines including psychology, sociology, anthropology, economics, and organization theory. Students will review, discuss and analyze critical factors that make an organization of any size and purpose perform effectively. Apply psychological principles to communications, organizational planning and personnel management. Examine how systems and values shape an organization's culture. Discuss how individuals work inside an organization and influence those around them in teams and department settings. Understand the importance of system thinking and change management.

BUSN1101 Workforce Planning 4

In this course you will learn how human resources influence business strategy and gaining an overview of best practices to obtain and retain top talent to support the strategy and goals of the organization.

This course observes the standards of the Human Resource Certification Institute.

BUSN1110 Business Law and Ethics 3

Business law and ethics affect every business, whether you are a for profit or nonprofit organization. Laws are not constant as they are interpreted by the courts which create vast uncertainty for business. Organizations must comply with the law, period. Ethics (like many laws) are not always clear; in fact, they are gray and we often learn from other organizations mistakes. Organizations should live by a Code of Ethics to promote ethical behavior at all levels, and advise individuals/employees on what to do when they observe or perceive something unethical. You will 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, contract, employment, and labor laws and how they affect business.

BUSN1121 Employee and Labor Relations 3

Examine all aspects of employee and labor relationships. Learning will include the various employee engagement strategies, performance management system, collective bargaining and legal and ethical considerations.

This course observes the standards of the Human Resource Certification Institute.

BUSN1130 Risk Management 2

Acquire an overview of how to provide a safe and healthy work environment. Supervisors/managers will be able to assess risks to their organization, and develop, based on knowledge gained in this course, a safety plan. As part of the plan, you will learn and conduct a risk analysis, job safety analysis, safety orientations, job safety training, perform workplace inspections and conduct effective accident investigations.

This course observes the standards of the Human Resource Certification Institute.

BUSN1141 Human Resource Development 3

Examine organizational methods at the strategic and tactical levels for training, developing, and retaining top talent.

This course observes the standards of the Human Resource Certification Institute.

BUSN1150 Compensation and Benefits 2

Design compensation, benefit and reward systems to attract and retain top talent. Examine government regulations to ensure compliance. Conduct competitive analyses of like organizations.

This course observes the standards of the Human Resource Certification Institute.

BUSN1160 Human Resource Essentials 3

Participants will be provided with the essential human resources (HR) functions for all leaders/managers that are not taking the Human Resources Management Certificate. This course is aligned with the Society of Human Resource Management (SHRM) Essentials in Human Resources program and prepares the participant to take the exam to earn the SHRM Essentials Certificate.

BUSN1200 Quality Management 3

Learn how to integrate TQM into planning and project management, strategic management, process improvement and how to modify an organizations behavior. Assess supervisors roles and responsibilities related to quality including identifying and meeting customer needs, applying problem solving tools and techniques for improving systems and processes and making quality decisions. Enhance work group commitment to continuous quality improvement.

BUSN1210 Project Management 3

Understand the project management process and learn to utilize the appropriate tools to initiate, plan, execute, control and close projects. Learn to apply knowledge, skills, tools and techniques to project activities to meet project requirements. Understand how organizational planning impacts the projects by means of project prioritization based on risk, funding, and the organization's strategic plan.

BUSN1220 Effective Business Communication 3

Learn and practice skills to communicate your message directly and effectively to generate the desired results,whether in a meeting, presentation or written media. Assess your audience prior to communicating to maximize effectiveness. Facilitate group participation including handling disruptive behavior. Learn to apply skills in any situation to achieve win-win negotiations.

BUSN1240 Creativity and Problem Solving 2

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 problems facing organizations. Work with stakeholders to minimize barriers and plan for successful implementation. Use processes and tools that will identify root causes and solve problems the first time.

BUSN1260 Managing Customer Service 1

Identify how supervisors / leaders 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. Assess internal and external customer satisfaction. Learn tools and techniques for gathering feedback and handling complaints. Consider the relationship between customer satisfaction, customer loyalty and quality.

BUSN1300 Multicultural Mentorship I 2

This course explains what multicultural mentoring is and how it can be used as an effective tool to develop individuals, foster teamwork, multicultural understanding and organizational effectiveness and productivity. This course places the student in the role of mentee and mentor. As a mentee, the student will learn how to develop and acquire new skills and abilities through a multicultural mentorship partnership. A mentor/mentee agreement will develop a path to growth opportunities. This course is a prerequisite for BUSN1310 Multicultural Mentorship II.

BUSN1310 Multicultural Mentorship II 1

This course builds on what multicultural mentoring is and how it can be used as an effective tool to develop individuals, foster teamwork, multicultural understanding and organizational effectiveness and productivity. This course places the student in the role of mentee and mentor. As a mentor, you will utilize skills learned to help their mentee succeed. A mentor/mentee agreement will develop a path to growth opportunities. *Prerequisites: BUSN1300*

BUSN1320 Managing Diversity 3

Identify what it takes to become a diversity leader in your organization and community. Learn the complexities of managing in todays diverse workforce. Explore the evolution of diversity from the past, present and future perspectives. Assess personal, group and organizational viewpoints toward diversity and diversity initiatives. Examine the legal aspects related to discrimination, affirmative action, bias and stereotyping in human resource activities. Implore effective communication methods to build relationships and understanding. Utilize the differences, similarities and tensions of individuals and groups into a collaborative and competitive advantage for your organization. Eliminate barriers affecting equal access and professional growth and mobility.

BUSN1330 Leading a Multicultural Workforce 3

Learn how to adapt global and multicultural contexts into traditional leadership theories. Develop assimilation strategies that do not lose the many advantages that diversity offers. Examine the leadership challenges regarding ethics, social responsibility, accountability and training in a multicultural environment. Choose appropriate leadership styles to build teamwork and collaboration. Raise the awareness of the workforce at all levels to leverage the value of diversity.

BUSN1340 International Business 3

Understand the growing influence of globalization on all areas of business. Assess the global business environment which includes trade, outsourcing, off shoring, legal, technological, political and social and ethical perspectives. Learn the effects of cultural contexts in negotiation and management. Explore strategies for international and global business.

BUSN1350 Multicultural Conflict Resolution 2

This course focuses on building multicultural conflict resolution skills needed to improve the workplace relationships by understanding the concept of cultural clashes, practicing conflict management prevention, mastering negotiating skills across cultures, building multicultural communication skills, developing mediation techniques, understanding the conflict management continuum resolving multicultural conflict, and comprehending the Alternative Dispute Resolution progression.

BUSN1600 Public Administration 3

This introductory course provides an overview of the field of public administration by focusing on the theoretical and practical knowledge. The aim of this course is to familiarize students with the basic principles, context, environment, organizational structure and contemporary issues in public administration.

BUSN1602 Public Administration: Organizational, Managerial and Legal 3

This course examines the background and implementation of public policy through managing, leading and the core functions of public management. Organizational theories, decision making and legal aspects related to public administration will also be addressed.

BUSN2010 Graduation Project —

Complete a workplace improvement project applying the knowledge and skills you have learned from the Business Management program. If the student is not employed at the time of registration, a personal improvement or community-based project may be conducted with approval by the program advisor. Credits may be variable based on the scope of the project. Reflect on learning from the project. All students will complete a nationally recognized exam encompassing the overall learning from the program of study.

Register in the last semester of the program unless otherwise approved by the advisor.

BUSN2970 Internship —

An internship experience provides the business student with an opportunity to explore career interests while applying knowledge and skills learned in courses through a work setting. The experience also helps students gain a clearer sense of what they still need to learn and provides an opportunity to build professional networks.

Register in the last semester of the program unless otherwise approved by the advisor.

CHEMISTRY

CHEM1500 Introduction to Chemistry 4

This course is a broad introduction to chemistry - its principles and applications. It is intended for the non-science major. No previous chemistry experience is required. Topics include: the scientific

method, measurement, quantitative calculations, atomic structure, periodic table, general properties of matter, the development of the model of the atom, naming, basics of chemical bonding, chemical reactions and their uses, chemical equations, acids and bases, and oxidation/reduction. Includes a lab experience.

Meets MnTC Goal 3

CIVIL ENGINEERING TECHNOLOGY

CIVL1131 Beginning Survey   5

Introduces the three basic surveying tools - the tape, level and transit/theodolite - along with proper field procedures for basic surveying which include taking field notes, taping and EDM, leveling, bearings and azimuths, topography, and mapping.

CIVL1151 Basic CAD   5

This is the first course in Computer Aided Design (CAD) labwork for Civil Engineering Technology Students using AutoCAD software. It will present the fundamentals of AutoCAD including but not limited to command structure, setting units and limits, drafting primitives, layering, use of editing tools, grid, snap, and axis commands. The assignments require extensive use of the Civil Engineering Technology CAD lab.

CIVL1222 Civil Drafting   4

An introduction to large scale mapping as used in highway and site design. Laboratory exercises include preparation of site plans, boundary surveys, and road plans. Laboratory exercises make extensive use of Autodesk Civil 3D. *Prerequisites: CIVL 1151*

CIVL1231 Intermediate Surveying and GPS   5

This course covers the basics of horizontal and vertical curve geometry as used in highway design before undertaking the study of more advanced surveying topics including: use of mass diagrams to track earthwork on highways, control surveying mathematics, universal coordinate systems, and boundary location . Laboratory exercises will vary between CAD drawings and outdoor exercises.

CIVL1242 Construction Surveying   2

A course on fundamental construction layout principles required for typical construction projects. Topics include: basic control networks, coordinate systems and coordinate geometry, alignment and grade for structures, roadway, and utilities, data collector use, and RTK GPS data acquisition, positioning, and mapping.

CIVL1251 Soil Mechanics/Materials Testing   3

Determination of soil composition and structure is the first phase of project delivery for every type of civil engineering related activity. This course covers the classification of soils through: soil exploration, basic geology, hydraulics of groundwater, weight-volume relationships, sampling procedures, stresses, strains, bearing capacity, settlement and expansion, compaction, stabilization, and an introduction to foundations and retaining walls. Soil mechanics are determined by both field and laboratory test methods. In this course, you will gain hands on experience by applying the methods that are commonly performed to determine soil mechanics. This course also familiarizes students with lab and testing procedures for

testing construction materials. Topics include sieve analysis, relative density, compaction tests, Atterberg limits, and soil classification, concrete strength testing, and bituminous sampling.

CIVL1256 Hydrology   1

This course is an introduction to storm water management as it relates to the design of storm water conveyance systems, and ponds using various engineering tools. Students will learn calculating runoff, pipe design and sizing.

CIVL1257 UAV/Drone Photogrammetry   1

An introductory course in photogrammetry using UAV (unmanned aerial vehicle) aka drones. Students will learn the correct use of drones as a survey/map making aid. Students will fly a drone and acquire data for use in making plans and maps for civil projects. *Prerequisites: CIVL1151*

CIVL2121 Construction Inspection and Project Management   4

Develop an understanding of the various roles that the construction inspector plays, and methods used by the construction inspector to document and enforce compliance with the specifications of a construction contact. This course also introduces the student to a key element of the Civil Engineering task: Project Management. The student will learn the elements of managing a construction project and work out project schedules by hand and with PM software programs.

CIVL2132 Land Survey   3

An advanced course on fundamental land survey principles required for typical boundary establishment. Topics include: Legal Description reading/writing, adverse possession, Junior/Senior rights, Riparian rights, Land Survey case law, and covers MN Rules on Land Surveys. *Prerequisites: CIVL1222*

CIVL2133 Subdivision Plat Drafting   1

An advanced drafting course for the drafting of subdivision plats under MN Statues 505 and others. Students will utilize AutoCad Civil 3D to render the plats. Students will also learn rules that apply to the drafting and recording of plats. *Prerequisites: CIVL1222*

CIVL2155 Eco-Sensitive Design   1

This course is an introduction to the design of sites, and buildings with methods, materials, and philosophies that produce sustainability and protect the worlds ecosystems. *Prerequisites: CIVL1222*

CIVL2211 Project Design   3

This course is a comprehensive introduction to the estimating practices used in the construction industry. *Prerequisites: CIVL2155*

CIVL2221 Properties of Construction Materials   2

This course is an introduction to the Properties of Construction Materials normally used in Civil Engineering applications. *Prerequisites: CIVL1251*

CIVL2241 Estimating   2

This course is a comprehensive introduction to the estimating practices used in the construction industry. *Prerequisites: CIVL2121*

CIVL2970 Internship   3

This course is required for graduation and consists of a minimum of 96 hours of experience in the Civil Engineering Technology industry as an intern. Intern tasks can vary: surverying, construction inspection, CAD work, and office work of a Civil Engineering Technician. *Prerequisites: First year CET classes*

COMMUNICATION STUDIES

COMS1015 Fundamentals of Public Speaking   3

This speech course introduces students to the factors involved in becoming efficient communicators in both individual and group presentations. The course emphasis will be placed on audience analysis, research and organization, speech construction, and delivery techniques.

Meets MnTC Goal 1

COMS1020 Interpersonal Communication   3

This course is intended to increase student's awareness of the processes, models, and theories of interpersonal communication relative to relationships that impact people's personal and professional lives. Through self-analysis and reflection, case studies, practical application, and critical thinking, students will examine the influence of communicative behaviors on themselves, their personal relationships, groups, and society. Concepts include self-esteem, self-fulfilling prophecies, perception, ethics, emotion, conflict, cultural awareness, language, nonverbal communication, social media, and listening.

Meets MnTC Goals 1 & 7

COMS1030 Intercultural Communications   3

This course studies cultural differences and how they affect our communication locally, nationally and globally. Topics include definitions of communication; definitions of culture and diversity of cultural patterns; cultural variables influencing communication such as the media, gender, language, nonverbal behavior, perception, values, and beliefs. Basic theories, models and concepts that interface with intercultural communication are explored. An examination of US culture in comparison to other cultures is explored in different contexts.

Meets MnTC Goals 7 & 8

CONSTRUCTION MANAGEMENT

CMSV1101 Introduction to the Construction Industry   3

Introduces students to construction materials and their methodologies. Topics include construction terminology, materials and their properties, manufacturing processes, construction techniques, and other related topics. This course is intended for students with limited construction experience.

CMSV1200 Construction Graphics   3

Study of graphic solutions to problems conditioned by traditional and emerging construction document standards. Students will produce construction graphics using computer-assisted processes. The principles of construction graphics are applied to the visualization, communication, and graphical analysis of problems. Introductory 2D documentation will progress into 3D modeling techniques.

CMSV2100 Soils & Concrete Technology   4

Discusses the history and fundamentals of concrete, admixtures, soils and aggregates. Examines the interactions of concrete, weather, and soil conditions; the proper placement of concrete; bearing capacity of soils; and the basic principles of concrete and soil inspection.

CMSV2710 IRC Plan Review & Field Inspections   3

Provides a basic understanding of how to conduct plan reviews and field inspections under the International Residential Code. Students will learn about building components and systems, and how residential building code requirements are applied to these systems during construction. This course is intended for a student that is working towards a career in the construction industry as an inspector or as a project manager, and will assist in the preparation for the ICC Residential Inspector certification. *Prerequisites: CMSV2860 or equivalent*

CMSV2720 IBC Plan Review & Field Inspections   3

Provides a basic understanding of how to conduct plan reviews and field inspections under the International Building Code. Students will learn about building components and systems, and how commercial building code requirements are applied to these systems during construction. This course is intended for a student that is working towards a career in the construction industry as an inspector or as a project manager, and will assist in the preparation for the ICC Plan Review and Building Inspector certifications. *Prerequisites: CMSV2860 or equivalent*

CMSV2730 IMC Plan Review and Inspections   3

Acquaints the student with the methods and techniques using the International Mechanical Code in plan review and field inspection of mechanical systems that include heating, ventilation, air conditioning, and refrigeration. This course is intended for a student that is working towards a career in the construction industry as an inspector or as a project manager and will assist in the preparation for the ICC Mechanical Inspector and Plan Review certification.

CMSV2741 Fire Suppression and Alarm Systems   3

This course is designed to explain the fundamental provisions of the International Fire Code and focuses on the basics of the code requirements for the design, installation, and operation of fire department systems, access, water supply, alarms, and hydrants. This course is intended for a student that is working towards a career in the construction industry as an inspector or as a project manager, and will assist in the preparation for the ICC Fire Suppression and Alarm certifications.

CMSV2850 Construction Safety   2

Examines the planning and administration of construction safety programs, and reviews the history and development of Federal and State Construction safety standards and methods for abatement and control of job site hazards to develop a safe construction project.

CMSV2860 Construction Plan Reading   2

This course walks students though an example set of construction documents including Architectural, structural, mechanical and electrical drawings. Emphasis is places on understanding standard conventions and symbols and navigating a drawing set to find specific information.

CMSV2870 Construction Management   3

Examines estimating, purchasing, bidding, scheduling, coordinating, expediting, and supervising work and dealing with public agencies, the design professions, suppliers, and subcontractors as these activities relate to the operation of a building contracting company.

CMSV2875 Mechanical & Electrical Systems   3

Identify, analyze, and evaluate all aspects of building mechanical, electrical, and plumbing systems. The students will explore a variety of systems found typical in both residential and commercial buildings and will have the opportunity to gain detailed knowledge on how systems are designed, constructed, and perform.

CMSV2885 Construction Estimating   3

Examines the basic techniques and guidelines of estimating. The student will develop skills to prepare material takeoffs, and discuss how these relate to labor, equipment, and time. Practical step-by-step estimating procedures will be applied to an actual building project. *Prerequisites: CMSV2860, 2870, 2890.*

CMSV2890 Building Organization & Technology   3

Examines the varied technology that comprise buildings and an exploration into the sequential process of building construction. Theories of building types, functional organizations, and material applications are presented. This course also includes the identification of historic basis for and comparison between basic building materials and construction methods. The importance of building assembly sequences is also presented.

CMSV2900 Construction Scheduling   3

Examines the planning, scheduling, management, and control relating to both core and higher functions associated with network diagram analysis, CPM scheduling, project diagnostics, forecasting techniques. *Prerequisites: CMSV2860, 2870, 2890*

CMSV2970 Construction Management Internship   3

Provides the student an opportunity to observe and participate in all aspects of construction management that are typically encountered in the construction workplace.

DENTAL ASSISTANT

DENT1100 Dental Science   4

This course provides an overview of basic normal body structure and function including an understanding of the common disease process. Special attention will be given to a comprehensive overview of the oral anatomical structures, functions, and development of the oral cavity, as well as the identification of structures of the head and neck and their functions. *Prerequisites: Admission to Dental Assisting Program*

DENT1110 Pre-Clinical Dental Assisting   3

This course will introduce the student to the health and safety considerations for basic infection control and dental emergencies. Topics will include occupational exposure risks, personal protection, exposure control, hazard communication standards, and medical waste disposal, as defined by government guidelines and regulations including OSHA standards. Special attention will be given on how to reduce the risk of transmission of disease commonly found in the dental office between dental assistants and patients, including various sterilization and disinfection techniques. This course will also discuss the prevention and treatment of medical emergencies commonly found in the dental office. The student will have a basic understanding of the classification, administration, use, and effects of drugs commonly used in a dental office. *Prerequisites: Admission to Dental Assisting Program*

DENT1120 Dental Health   2

This course is designed to provide the student with the knowledge necessary to instruct a patient in proper oral hygiene and explain the benefits of fluoride. It also will provide the students with basic nutritional concepts and their practical applications. *Prerequisites: Admission to Dental Assisting Program*

DENT1135 Chairside Assisting I   4

This course introduces the student to the fundamentals of working in a dental office setting as a chairside assistant. It introduces concepts of dental charting, techniques of basic equipment, supplies, four-handed dentistry, oral evacuation and instrument identification and their proper use. This course also provides an introduction to the psychology of patient management skills necessary for effective interaction with patients.

DENT1145 Dental Materials   4

This course provides the student with the knowledge and practical application of dental materials commonly found in the dental office. Emphasis will be on chemical and physical properties, uses, types and applications. Students will be able to identify uses for specific dental products and be aware of specific care and storage properties of various materials.

DENT1250 Radiology   5

This course requires instructor approval if not taken in the semester sequence. This course assists the student with an understanding of how radiation is produced, principles of protection for the patient and the operator, and techniques for processing radiographs as well as identifying processing errors. This course covers the techniques used in exposing intraoral radiographs as well as technical errors and corrections. Students will learn to mount and evaluate films for their diagnostic value. The student will be exposed to the extraoral accessory films utilized in the dental office and the procedural techniques for exposing them. *Prerequisites: Admission to Dental Assisting Program or instructor permission*

DENT1260 Expanded Functions   5

This course prepares the assistant to perform all functions legally performed by a licensed dental assistant (LDA) 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, gingival displacement, dry root canal with paper points, place cotton pellets and temporary restorative materials into endodonlic openings, and nitrous oxide monitoring. *Prerequisites: Admission to Dental Assisting Program or instructor approval*

DENT1275 Chairside Assisting II 4

This course furthers knowledge of chairside assisting duties by presenting tray set-ups and the restorative process to help further the development of basic skills of four handed dentistry. This course also introduces basic concepts of the different specialities in dentistry, including orthodontics, oral surgery, endodontics, pediatrics, prosthodontics, and oral pathology. The student will be taught to identify the instruments, materials, and procedures needed to gain skills in assisting the dentist with each speciality.

DENT1280 Dental Practice Management 2

This course is an overview of duties performed by a dental assistant with emphasis on patient registration, medical history forms, telephone skills, appointments, recordkeeping, and correspondence. It also will provide the student with knowledge of professional ethics and dental laws with emphasis on the Minnesota Dental Practice Act. Students will write the Minnesota Dental Jurisprudence Exam. *Prerequisites: Admission to Dental Assisting Program or instructor permission*

DENT2970 EXTERNSHIP: Dental Assistant 7

This course provides the student with actual experience assisting in an off-campus clinical setting in private dental offices, group practices, or specialty dental offices. *Prerequisites: Prior completion of all Dental Assisting courses or instructor approval*

ECONOMICS

ECON1100 Principles of Microeconomics 3

This course is an introduction to: price mechanisms, supply and demand, resource allocation, analysis of market structures, distribution of income, and business decisions with regard to cost analysis.

Meets MnTC Goal 5

ECON1200 Principles of Macroeconomics 3

This course analyzes the interactions between all segments of the economic system. The course will focus on savings and investment, aggregate supply and aggregate demand, the monetary system, unemployment and inflation, and fiscal policy. Additional topics may include the balance of payments and currency exchange rates determination.

Meets MnTC Goal 5

EARLY CHILDHOOD & YOUTH DEVELOPMENT

ECYD1110 Introduction to Early Childhood Education 3

This course provides an overview of the early childhood profession, including theories, philosophies, research, principles, and regulations impacting work with young children and their families. This course examines the differing roles within the profession and the many influences on work with children and families.

Note: This course requires a MN OHS criminal background study including fingerprints.

ECYD1215 Child Growth and Development 3

This course examines the major developmental milestones across cultures, both typical and atypical, for children from conception through age eight in the areas of physical, social, emotional, language, cognitive and aesthetic/creative development. While studying developmental theory, investigative/observational research methods and developmentally appropriate practices, students will observe children and analyze characteristics of development at various stages. The course emphasizes interactions between maturational processes and environmental factors. To complete assignments in this class, students are required to spend approximately 10 hours per semester outside of class time observing young children in community-based early childhood programs.

Note: This course requires a MN OHS criminal background study including fingerprints.

ECYD1225 Health, Wellness, and Nutrition 3

This course provides an introduction to the 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, child abuse prevention, safe sleep practices, and current health-related issues. The importance of collaboration with families and allied health professionals is addressed. To complete assignments in this class, students are required to spend approximately 10 hours per semester outside of class time observing and interacting with young children in community-based early childhood programs.

Note: This course requires a MN OHS criminal background study including fingerprints.

ECYD1235 Guiding Young Children 3

This course examines the positive, developmentally appropriate strategies used to guide children's behavior and support social and emotional development during early childhood. The course examines the multiple influences on child behavior as well as strategies to support self-regulation and peer relationships during early childhood. To complete assignments in this class, students are required to spend approximately 10 hours per semester outside of class time observing and interacting with young children in community-based early childhood programs.

Note: This course requires a MN OHS criminal background study including fingerprints.

ECYD1250 Learning and Creativity in Early Childhood   3

This course examines the role of adults in providing environments, interactions, and activities that support learning and creativity in the early childhood years. The nature and importance of play as a vehicle for child learning is addressed as well as implementation of developmentally and culturally appropriate practices. The importance of child choice and active exploration as strategies to meet appropriate goals for learning and development are stressed.

ECYD1320 Infant and Toddler Care and Education   3

This course examines the developmental theories and caregiving skills unique to work with infants and toddlers. Students will build on their knowledge of child development with a special focus on topics such as temperament, attachment, brain development, and the emergence of self-regulation during the first years of life. Students will also explore the impacts of culture and diversity on the care and education of infants and toddlers. Age appropriate curriculum models and learning experiences are explored. To complete this class, students are required to spend 50 hours per semester (approximately 5 hours per week) observing and interacting with infants and toddlers children in an approved community-based early childhood program. *Prerequisites: ECYD1215*

Note: This course requires a MN OHS criminal background study including fingerprints.

ECYD1335 Observation and Assessment   3

This course focuses on the appropriate use of authentic observation and assessment strategies to document children's development, growth, play and learning, to plan and individualize curriculum and teaching practices, and to join with families and professionals in promoting children's success. Students will explore recording strategies, rating systems, multiple assessment tools, and portfolios. Focus is placed on increasing objectivity in observing and interpreting children's behavior, using assessment ethically, observing developmental characteristics, and increasing the awareness of patterns of children's behavior. Students participating in this course should expect to devote at least 15 hours per semester of out-of-class time to observation in a community-based early childhood setting. *Prerequisites: ECYD1215*

Note: This course requires a MN DHS criminal background study including fingerprints.

ECYD1350 Curriculum Planning and Implementation   3

This course provides an advance level examination of learning in early childhood. Students will examine program and curriculum models consistent with best practice in the profession as well as various short- and long-term planning strategies employed by early childhood teachers. Learning trajectories for early childhood content areas will be examined and students will practice selection of developmentally appropriate learning goals, activities, materials and instructional strategies. Use of assessment data to guide the development of individually appropriate and responsive curriculum will be emphasized. To complete this class, students are required to spend 10 hours per semester observing and interacting with young children in an approved community-based early childhood program. *Prerequisites: ECYD1215, 1250*

Note: This course requires a MN OHS criminal background study including fingerprints.

ECYD1360 STEM in Early Childhood.   3

This course examines the development of skills in science, technology, engineering and mathematics during early childhood. Students will explore the learning trajectories associated with each content area as well as developmentally appropriate environments and experiences for teaching concepts such as number sense, counting patterns, measurement, the scientific process, balance symmetry, and more. An exploration of outdoor play and the incorporation of nature in early childhood programs is also emphasized. To complete this class, students are required to spend 10 hours per semester observing and interacting with young children in an approved community-based early childhood program. *Prerequisites: ECYD1215*

Note: This course requires a MN OHS criminal background study including fingerprints.

ECYD1520 Practicum I   3

This course provides students an opportunity to demonstrate the early childhood teaching competencies explored in other classes while guided by a supervising teacher in a licensed early childhood program. The competencies addressed include: developing active and developmentally appropriate environments accessible to the multiple needs of learners, positive child guidance strategies, communication skills, and development of professional skills such as communication and respectful interactions with families, colleagues, and other potential partners in the care and education of young children. *Prerequisites: ECYD1100, 1215, 1225, 1235, 1250*

Note: This course requires a MN OHS criminal background study including fingerprints.

ECYD1570 Child and Family Relations in a Diverse World   3

This course examines the impact of family, culture and society on young children. Students will consider strategies for emphasizing culturally and linguistically appropriate and anti-bias approaches while supporting children's care and education. Students will examine the many types of families, as well as the importance of forging effective partnerships with families and community organizations and resources. To complete assignments in this class, students are required to spend approximately 10 hours per semester outside of class time observing and interacting with young children in community-based early childhood programs.

Note: This course requires a MN OHS criminal background study including fingerprints.

ECYD2340 Children with Differing Abilities   3

This course examines the development of children with differing abilities. Students will integrate strategies that support inclusive programs for children, apply legal and ethical requirements including, but not limited to, the American Disabilities Act and Individuals with Disabilities Education Act. Students will differentiate between typical and atypical development, analyze the differing abilities of children with physical, cognitive, health/medical, communication, and/or behavioral/emotional special needs and explore strategies to adapt curriculum to meet the needs of children with developmental differences and cultivate partnerships with families. This course includes an emphasis on the use of sign language with children to support communication and the development of language skills. To complete assignments in this class, students are required to spend approximately 15 hours per

semester outside of class time observing and interacting with young children in community-based early childhood programs.

Note: This course requires a MN OHS criminal background study including fingerprints.

ECYD2501 Experiential Learning   1

This course provides students with an opportunity to experience both clinical and non-clinical sites, as well as expertise in the field. Emphasis will include volunteer experience in a selected setting. Course goals are based on site placement and individual need. To complete this class, students are required to spend 40 hours per semester (approximately 3 hours per week) observing and interacting with young children in an approved site. *Prerequisites: Instructor Permission is required.*

Note: This course requires a MN OHS criminal background study including fingerprints.

ECYD2520 Practicum II   3

This course provides students an opportunity to apply theory, knowledge, and skills in an early childhood setting. Students will demonstrate the ability to plan and lead developmentally, culturally, and individually appropriate activities that meet the learning goals of the program in which they are placed. To complete this class, students are required to spend 150 hours per semester (approximately 10-15 hours per week) observing and interacting with young children in an approved community based early childhood program. *Prerequisites: ECYD1520, 1335, 1350, 1570, 2340.*

Note: This course requires a MN OHS criminal background study including fingerprints.

ECYD2550 Language and Literacy Development   3

This course is an introduction to children's language and literacy development from birth to age eight. Students will obtain skills in creating developmentally appropriate learning experiences that support both oral language and emerging literacy skills amount children at all developmental levels. Students will be exposed to a wide range of instructional practices, approaches, methods, and curriculum materials to support children's language and literacy development. To complete assignments in this class, students are required to spend approximately 10 hours per semester outside of class time observing and interacting with young children in community-based early childhood programs. *Prerequisites: ECYD1215*

Note: This course requires a MN OHS criminal background study including fingerprints.

ECYD2610 Leadership in Early Childhood Organizations   3

This course provides an advance level examination of professional expectations and behavior. Students will examine the nature of leadership in early childhood profession including ethical considerations, advocacy, and communications skills required when leading or interacting with colleagues, clients, and allied professionals. Coursework includes opportunities to develop teamwork and problem solving skills while examining issues of interest to students and relevant to early childhood professions. A special focus on job seeking skills, professional presentation and on-going professional development if included. *Prerequisites: ECYD1110, 1215, 1225, 1235, 1570*

Note: This course requires a MN OHS criminal background study including fingerprints.

ECYD2960 Field Experience   3

Field Experience This course provides an opportunity to demonstrate competencies under guided supervision and to make connections between theory and practice. Students will develop professional behaviors through experience in professional settings. Students apply comprehensive understanding of developmentally and culturally appropriate approaches for supporting children and families in a variety of settings, including medical sites. To complete this class students are required to spend 120 hours per semester (approximately 10-15 hours per week) observing and interacting with children and families in approved community-based programs. *Prerequisites: Instructor permission is required for this course.*

Note: This course requires a MN OHS criminal background study including fingerprints.

ELECTRICAL CONSTRUCTION & MAINTENANCE TECHNOLOGY

ELEC1110 D.C. Electricity Theory and Lab   3

This course covers the properties of direct current electrical systems. The course investigates the properties of electrons, conductors, insulators, semiconductors, and electromagnetism. The course also instructs students on how DC voltage is produced, transmitted and used in the electrical field.

ELEC1120 A.C. Electricity Theory and Lab   3

This course covers the properties of alternating current. Investigating the different types of AC voltages and how they are produced. The course also covers the different types of calculations for AC circuits including resistive, capacitive, inductive, power, three phase wye, and delta systems

ELEC1130 National Electrical Code I   3

This course covers the requirements of the current National Electrical Code which governs all Residential, Commercial, and Industrial electrical installations.

ELEC1137 Construction Site Safety   1

Safety in the workplace is everyone's responsibility. This course covers basic employee safety training for hazards commonly encountered on a construction site or industrial workplace. Employees can greatly reduce the chance of injury to themselves or co-workers by carefully following OSHA and general rules, and safe work practices.

ELEC1139 Electrical Construction Fundamentals   2

Construction is the systematic process of putting something together. Constructing electrical systems requires a variety of mechanical skills including, but not limited to, measuring, cutting, drilling, bending, fabricating, mounting, fastening, supporting, and terminating. These basic mechanical skills become the foundation for technical and specialized skills. As such, construction requires the efficient and safe use of numerous hand and power tools, as well as the techniques to use trade-specific tools. In addition, electrical work is a licensed and regulated occupation. It is important that students are made aware of the laws and rules governing licensing and registration so as not to find themselves facing the consequences of working unlawfully.

ELEC1140 Blueprint Reading for Technicians 3

This course investigates blueprint reading. The course will consist of basic sketching and drawing of both 2D and 3D objects, applications of plans, use of line types, scaling, application of notes, specifications and details in print reading.

ELEC1210 Analog and Digital Electronics Theory 2

This course covers the theory of semiconductors, power supplies, amplifiers, digital circuits, microprocessor applications, sensors and applies the theory of both ELEC1110 and ELEC1120 courses. *Prerequisites: ELEC1110, 1120 and MATS1205*

ELEC1220 Analog and Digital Electronics Lab 4

This course proves the theories of ELEC1110 and ELEC1120 by connecting, testing, and analyzing semiconductors, power supplies, amplifiers. digital circuits, microprocessor applications, and sensors. *Prerequisites: ELEC 1110, 1120 and MATS 1205*

ELEC1230 Construction Skills and Intro to Wiring Theory 3

This course covers material and design of residential wiring, wiring methods, fastening devices, sizing of boxes, wire and over current devices. Including branch circuit requirements and the application of the NEC for a dwelling unit and the use and application of blueprint. *Prerequisites: ELEC1130, 1139*

ELEC1240 Construction Skills and Intron to Wiring Lab 6

This course covers lab experiences in material and design of residential wiring, wiring methods, selection of proper fastening devices, sizing of wiring boxes, branch circuit requirements, and use of blueprints. *Prerequisites: ELEC1130, 1137, 1139*

ELEC2110 Electrical Apparatus Theory 3

This course will consist of technical instruction and assessment of knowledge related to installation and operation of electrical switch boards, distribution boards, circuit breakers, disconnects, and industrial control panels. Students will receive instruction on basic and circuits, single and three phase motors, and transformers. Students will also study different single and three phase motor starting techniques, using soft starts and variable frequency drives. Students will study the National Electrical Code requirements governing the installation of electrical equipment. *Prerequisites: ELEC 1120, 1130, 1240*

ELEC2120 Electrical Apparatus Lab 6

This course will consist of clearly directed lab exercises with the expectation of exact results, performance evaluations and related assignments. Students will have an opportunity to connect, troubleshoot, and operate both basic and complex control circuits, connect and operate single-phase and three-phase motors, across-the-line motor controllers, reduced-voltage starters, and variable frequency drives. In addition, students will connect and operate single-phase and three-phase transformers, autotransformers, and other electrical equipment and apparatus. The supporting technical information will be provided through a parallel theory course. *Prerequisites: ELEC 1120, 1130, 1240*

ELEC2131 Programmable Logic Controllers Theory 2

Course work includes the technical information supporting a parallel lab course. Students will learn RS Logix 500 and RS logix 5000 software to create, edit, and operate control programs for the micrologix and compactlogix family of processors. Students will also learn the factory talk view software to create application for the Allen Bradley family of operator interface terminals. In addition, students will study basic instrumentation and networking strategies associated with automation technologies. *Prerequisites: ELEC1220*

ELEC2141 Programmable Logic Controllers Lab 4

This course will consist of directed lab exercises with the expectation of correct program operation of a PLC. Students will learn RS Logix 500 and RS logix 5000 software to create, edit, and operate control programs for the micrologix and compactlogix family of processors. Students will also learn the factory talk view software to create application for the Allen Bradley family of operator interface terminals. In addition, students will study basic instrumentation and networking strategies associated with automation technologies. *Prerequisites: ELEC1220*

ELEC2210 National Electric Code II 3

This course covers continued requirements of the National Electrical Code. *Prerequisites: ELEC1130*

ELEC2220 Electrical/Electronic Controls and Systems Theory 2

This course covers analysis and troubleshooting of building and A/C, D/C drives, and automation systems, energy management systems, heating and cooling systems, fire alarm and security systems, and integrated voice/video/data and infrared systems. *Prerequisites: ELEC 2131, 2141*

ELEC2230 Electrical/Electronic Controls and Systems Lab 4

This course covers the analysis and troubleshooting of energy management, heating and cooling systems, fire alarm, security, and lighting control systems. It will cover and familiarize students with voice, video, data, and fiber systems. *Prerequisites: ELEC1240*

ELEC2241 Industrial and Maintenance Wiring Theory and Lab 3

This course covers the use of materials and design of industrial wiring, service equipment, and industrial tools. *Prerequisites: ELEC1240*

ELEC2251 Commercial Wiring Theory and Lab 3

This course covers the use of materials and design of commercial wiring, commercial tools and equipment, service equipment, and maintenance technology. *Prerequisites: ELEC1240*

ELEC2260 Heating, Ventilation, and Air Conditioning Wiring Theory and Lab 3

This course covers the electrical and equipment installation for heating, ventilation and air conditioning for residential, commercial, and industry buildings. *Prerequisites: ELEC1110, 1120*

ELECTRICAL LINE WORKER

ELLW0098 Introduction to Climbing 1

This course covers the introduction to the equipment used for climbing. The use of this equipment will be applied to the act of learning to climb safely and correctly.

ELLW1110 Distribution I   4

Learning to climb safely along with the use of digger/derrick units. It includes an introduction to pole framing and guying applications, along with an introduction to the use of rigging to the industry. *Prerequisites: ELLW1098*

ELLW1120 Utility Equipment and Tools   2

Introduction to the tools and powered equipment used in the electrical line industry. Students will familiarize themselves with the safe and proper operation of this equipment. *Prerequisites: ELLW0098.*

ELLW1130 Basic Electricity   2

The student will use mathematics to calculate power, voltage, resistance, and current in each type of circuit. This course is an introduction to the use of formulas needed to do calculations the lineworker may encounter in the field. The introduction to the magnetic circuits will be the basis for transformer application.

ELLW1140 Distribution IIA   4

This course covers the construction aspects in the building of single-phase and three-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. *Prerequisites: ELLW1110, 1120; Corequisite: ELLW1141*

ELLW1141 Distribution IIB   4

This course covers more of the material that is in ELLW1140 Distribution IIA. *Prerequisites: ELLW1110, 1120; Corequisite: ELLW1140*

ELLW1145 Rope and Rigging   2

Students will learn and practice knot tying and splicing. Also included are the study of rope characteristics, different uses of rope, and basic rigging techniques.

ELLW1150 Construction Planning and Practices   2

This course cover s the use of different drawing s, map s, and construction materials used in the lineworker' s field. This include s the list of material s and specification s. Use of the transit will be introduced and applied to the lab field where line s will be staked for future building as a project. *Prerequisites: ELLW1110*

ELLW1155 Equipment Operations   2

A mix of classroom training and outdoor lab work studying and applying the safe and efficient operation of digger derricks, skid steer loaders, backhoes and trenchers.

ELLW1160 Transformers I   4

This course covers the theory and applications of transformer principles of magnetic and electrical circuits for primary and secondary connections. Understanding of polarities, types and possibilities of connections, with the needed information for choosing the loading, transformer types and sizes, and the fusing of the same. *Prerequisites: ELLW1130; Corequisite: ELLW1162*

ELLW1162 Transformers II   4

This course covers 3 phase transformer theory and their connections to the primary and secondary distribution systems. *Corequisite: ELLW1160*

ELLW1165 Pole Top and Bucket Rescue   2

Students will learn the most up-to-date techniques and operations of rescue equipment in the electrical line worker industry. Along with this training, the student will obtain First Aid, CPR and AED certification.

ELLW1170 Line Construction and Maintenance A   4

Encompasses the construction, maintenance, and safety practices used around live line conductors and supporting structures. *Corequisite: ELLW1172*

ELLW1172 Line Construction and Maintenance B   4

Continuation of Line Construction and Maintenance A, this course covers construction and maintenance techniques used while incorporating insulated aerial bucket trucks, rubber gloves, insulted line cover-up, and live line tools. *Corequisite: ELLW1170*

ELLW1175 System Protection   2

General overview on the basic fundamentals of equipment used in Transmission and Distribution system protection. The objective of this course is to understand how protection systems function, how they protect the general public and utility employees, reduce damage to electrical equipment, and decrease duration and number of sustained outages.

ELLW1180 Underground Cable and Fault Locating   2

Covers practices involved in underground distribution systems, including cable terminating, switching, and URD system trouble shooting.

ELLW1185 Electrical Industry Search Skills   1

This course covers a comprehensive view of the aspects incurred in job search activity. It will cover locating job openings, hidden markets, assessing employment strengths, writing resumes, writing cover letters, completing applications, preparing for interview questions, and using the computer highway for job searching.

ENGLISH

ENGL0150 English Writing Essentials   3

This is a basic writing course that introduces students to the primary principles of college composition and professional writing skills. The courses' primary skill areas include organizational development, refined grammar and punctuation execution, proper paragraph development, short essay construction, proofreading skills, audience recognition, and rules for formatting. *Prerequisites: see course details in eServices for prerequisites information.*

ENGL1150 Composition I   3

This course emphasizes the process of writing expository and persuasive essays using effective writing skills and a variety of research techniques. Also included in the course content are critical reading and logical reasoning. *Prerequisites: See course details in eServices for prerequisites information.*

Meets MnTC Goal 1

ENGL1200 Technical Writing   3

This course is designed to enhance students' abilities to write technical documents. The content covered will include proposals, research reports, technical manuals, feasibility studies, and process reports. *Prerequisites: Students need a score of 240 or above on the Accuplacer English and Reading assessment. Corequisite: If students score between 230-239 they can register for this course, but must concurrently take READ0110 College Reading Boost.*

Meets MnTC Goal 1

ENGL1300 Introduction to Creative Writing   3

This course introduces students to the fundamentals of creative writing. the focus is on fiction and poetry; nonfiction and screenwriting may be covered as well .

Meets MnTC Goals 1 and 6

ENGL1375 The Short Novel   3

This course emphasizes knowledge of the human condition and human cultures, especially in relation to behavior, ideas, and values as demonstrated in short novels. Course topics include, but are not necessarily restricted to, the study of setting, structure, characterization, point of view, and prose style as demonstrated in short novels. The course also covers themes, concerns, and attitudes expressed in fiction across a range of periods.

Meets MnTC Goal 6

ENGL1401 Short Stories   3

This course examines a diverse collection of short stories from various cultures and periods in history. The course explores the short story as an art form designed to provoke thought and develop critical thinking skills. Weekly classroom discussions inspire new outlooks and elevates knowledge of the human condition.

Meets MnTC Goal 6

ENGL1550 Introduction to Literature   3

This course introduces you to a variety of literary works. You will explore what is meant by literature and why we bother reading it.

Meets MnTC goal 6.

ENGL1570 The Literature of Nature   —

This course focuses on the understanding and analysis of humanity's relationship to its environment, as revealed through particular genres, such as the short story, essay, diary, and poetry. Students will review the major texts in the literature of nature and look at the ethical and philosophical relationship between humans and nature over the centuries, focusing primarily on North America.

Meets MnTC Goals 6 & 9

ENGL1625 Film Studies   4

This course emphasizes the review and analysis of films. This will include how movies reflect and shape the hopes, dreams, and aspirations of the society that produces them. These films will be from various genres and span the entire time frame that movies have been a popular phenomenon. Also included in this course is logical reasoning as well as the investigation of certain aspects of film that set it apart from other literary forms such as technical advances, special effects, camera angles, costuming, cinematography, and lighting.

Meets MnTC Goal 5 & 6

ENGL1630 Genre Film   1

This course emphasizes the review and analysis of focused genres of films. This will include how a genre reflects the society that produces them and how each genre transcends the limits of its formula. Also included in this course is logical reasoning.

Meets MnTC Goal 5 & 6

ENGL1650 Greek Mythology   4

This course emphasizes the review and analysis of various Greek myths. This will include how these myths have reflected and shaped art and history. Also included in the course are critical reading and logical reasoning.

Meets MnTC Goal 6

ENGL1675 Children's Literature   3

Students will study and evaluate literature (picture books, fables, fairy tales, fantasy fiction, realistic fiction, historical fiction, and more) written for children from first years to preteen years. Topics covered in this course include (but are not limited to) how to study, analyze, and discuss literature; how to engage children in reading and to encourage thoughtful and creative responses to literature; how to evaluate the literary and educational merits of a text; how to introduce children to a variety of cultural and historical perspectives through literature; how to promote the overall joy of reading; and personal reflections on various modern-day concerns with literature.

Meets MnTC goal 6

ENGL2000 Composition II   3

This course will offer challenging insights into the act of writing. Students will continue to strengthen their writing skills while engaging in analysis of literary texts and secondary sources. In writing critical essays based on that analysis, students will apply rhetorical strategies related to purpose, audience, genre and context. *Prerequisites: ENGL1150*

Meets MnTC Goal 1

BUSINESS ENTREPRENEUR

ENTR1170 Introduction to Small Business   2

Students taking this course will learn what it takes to own, operate, and grow a small business successfully. The student will learn the personal traits and characteristics necessary to succeed in the fast-paced small business environment. This course will also examine the various ways small business can start. Some of these ways include starting a business from scratch, buying an existing business, or buying a franchise. Various case studies will be examined as to why some businesses fail, while other succeed. In addition, the student will identify their individual strengths and weaknesses and will learn which of these areas help or hinder the success of small business ownership. Although there is no way to 100% failure-proof a business, the student will learn the three main secrets to launching a small business successfully.

ENTR1760 Selling & Negotiating for Small Business Owners 3

Your success as a business owner is directly related to your ability to sell yourself, your company, and your products or services. This course is ideal for the new business owner especially if they have never sold before. The entire sales process is clearly defined and broken down into seven steps that lead the student through all aspects of sales. Each student learns how to sell his or her own product or service and is given ample opportunity to practice selling his or her own products and services in a safe setting. In addition to learning how to sell, the student will also learn how to negotiate and will be able to practice negotiating skills in a safe environment. The student will learn the importance of a win/win negotiation and learn the consequences when one party wins and the other party loses. The student will be part of a negotiation team and the team will be part of a negotiation role play.

ENTR1860 Business Plan Development 3

This course will give the student all the necessary tools to create a business plan that gets results. The student will, during the course of the semester, create his or her own business plan, which is the main objective of the course. The business plan process will be broken down into five areas: vision, 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.

ENTR1920 Capitalizing and Financial Management for Small Business 2

This course will provide the student with the basics of raising money for his or her business, along with gaining a basic understanding of the financial management aspects of any small business. The student will be exposed to the various methods of raising both start-up capital and capital for continuing operations. The methods for raising money presented in the class include bank loans, SBA loans, other debt instruments, venture capital, equity financing, and Federal Grant opportunities. The student will also learn the basic, common-sense aspects of money management including understanding cash flow, basic spreadsheets, and monthly/quarterly and annual financial requirements for tax purposes.

EXERCISE & SPORT SCIENCE

EXER1000 Introduction to Human Performance Studies 3

Introduction to the fields of exercise science, sport management, and physical education. Topics include: programs of study, professional roles and responsibilities, employment qualifications and opportunities.

EXER1015 Personal Health and Wellness 3

A comprehensive course that focuses on physical activity, nutrition, behavior modification, and disease prevention. Students will learn to take responsibility for their overall health and learn practical ways to achieve optimal health and wellness.

EXER1020 Strength Training 2

Principles and procedures of effective resistance training techniques in a supervised environment. Topics include: skeletal and muscular anatomy and physiology, program design for various experience levels, lifting safety, and weight room etiquette.

EXER1025 Physical Conditioning 2

Improve cardiovascular conditioning in a supervised environment. Explore the fitness components through discussion and hands on activities. Topics include: flexibility, cardiovascular endurance, muscular strength and endurance, fitness assessment and program design.

EXER1045 Organization and Management of Sports 3

Designed to introduce students to the functions of management as they relate to sporting activities and events. Topics include: career paths, management roles, and scope of sports managers responsibilities.

EXER1050 Nutrition for Health and Human Performance 3

Explore the complex relationship of nutrition with health, fitness and sports performance. Topics include: nutrient recommendations and guidelines for health and performance, tracking food intake from ingestion through absorption and elimination, and calculating energy requirements for different types and levels of activities.

EXER1065 Psychology of Sport and Performance 3

Psychology affects sport participation and sport participation affects psychology. Explore the relationship with an emphasis on psychological skills training. Case studies allow students to apply course concepts to real world situations.

EXER2020 Personal Training and Exercise Leadership I 2

Develop basic competency in designing and implementing fitness programs for healthy populations. Emphasis on safe and effective exercise techniques to improve flexibility, body composition, cardiovascular endurance, and muscular strength and endurance.

EXER2035 Health and Lifestyle Coach 3

This course is designed to provide theoretical knowledge and practical skills in preparation for a national certification exam in health coaching. Topics include effective coach-to-client communication techniques; behavioral, nutritional, and physiological sciences (particularly as they relate to the obese client); screening and assessment; guidelines for designing and implementing safe, effective, and purposeful exercise programs; and the legal, professional, and roles of the health coach.

EXER2090 Exercise for Special Populations 2

Explore the role of the exercise science professional in a comprehensive healthcare team. Providing optimal services to clients with chronic diseases and disabilities. Topics include: the effects of condition in exercise response, the effects of exercise on the condition, appropriate fitness assessments, and exercise program guidelines.

EXER2115 Applied Exercise Physiology 3

Students will study the human body's acute responses and chronic adaptions to exercise and other external stressors such as altitude and environmental temperature extremes. Learning will occur through laboratory activities, demonstrations, hands-on experiences, and class discussion.

EXER2225 Theory of Coaching   2

What makes a successful coach? Analyze coaching theories for individual and team sports. Discover motivation techniques, game and practice management strategies, and coaching methods and skills.

EXER2260 Recruiting and Retaining Clients   1

Introduction to the business side of personal training. Students will learn sales and marketing techniques to use to recruit clients and customer service skills to retain their clients.

EXER2275 Sport Marketing   3

This course is designed to give students an understanding of marketing theories and practices relative to the sports industry. Specific topics include: public relations, promotions, special events, fundraising, licensing and merchandising, market research, pricing, sales, sponsorship and consumer behavior as it applies to the marketing sport or marketing products through sport.

EXER2280 Health and Aging   3

Examine the effects of exercise on the complex physiological and psychological process associated with aging. Explore program design principles for healthy older adults and for those with chronic conditions.

EXER2295 Social and Ethical Aspects of Sport   3

Fighting in hockey. Cheap shots in football. Performance enhancing substance use in baseball. Discover how sport ethics affects society and how society influences sport ethics. Debate current ethical issues in youth, high school, college and professional sports.

GRAPHIC DESIGN

GRDT1001 Technical Foundations   2

This is an introductory course that prepares all students for entry into the graphic design or web and multimedia design fields. General overviews will be given of the visual arts, photography, and graphic design fields. Students will learn basic computer operations, how to use the local campus network for servers and printers, ad an introduction to the online classroom resources. Additionally, students will learn to prepare, mount, display, and present design work.

GRDT1010 Adobe Photoshop I   3

This is an introduction to 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, enhancement and layer masks are also included.

GRDT1016 Typography and Layout I   3

This course covers the basics of typography and development of page layout in graphic design processes. It provides an overview of the graphic design profession and a historical framework for modem typography and layout practices. Typography classification and identification are covered. Design elements and principles are used as a foundation of any design work. Both screen and print formats are explored. Students work with type and visuals to create layouts and solve design assignments.

GRDT1030 Graphic Design Fundamentals   3

In this course, the principles and elements of design will be studied and applied to various design projects. Methods of solving creative problems will be explored and developing creativity and overcoming creative blocks will be emphasized. Those methods will include the application of the creative process and metaphorical thinking. Additional emphasis is placed on evaluating solutions and effective presentation of those solutions. Professionalism and professional attitude will be practiced.

GRDT1053 Design Drawing   3

This is a beginning drawing course geared toward developing or improving good drawing habits. Linear perspective is emphasized. Drawing freehand is practiced for sketchbook and various classroom exercises. Drawing in perspective will also be emphasized, including one, two and three point perspective. The course will explore composition, drawing and rendering techniques. A key emphasis for this course is to instill more confidence in visual expression, through learned techniques and to become a better visual communicator.

GRDT1096 Illustration Fundamentals   2

This course covers the basic concepts in the illustration sector of visual communication. The history and genres of illustration as well as illustration styles and mediums are examined. Projects are assigned to develop illustration skills and uses of various media. Using professional business practices are part of the focus. Visual concept development and communication through illustration are explored through research and application. *Prerequisites: GRDT1030, 1053*

GRDT1410 Adobe Illustrator I   3

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, layers, spot and process color, and file output will be emphasized.

GRDT1423 Print Processes and Production   3

This graphic design course is designed to give the student a hands-on overview of various printing processes. Theory, terminology, paper use and production, as well as press and bindery processes will be emphasized. Students will make paper, print on paper and virtually use a press simulator. Students will work with vinyl and learn more about this growing field.

GRDT1430 Adobe InDesign I   3

Students will become familiar with Adobe InDesign as an electronic publishing/page layout program. Emphasis will be placed on software operation. Use of text, graphics, tabs, style sheets, and master pages will be incorporated into projects.

GRDT2016 Typography and Layout II   3

This course covers advanced typography and page layout skills. Students develop greater understanding of type as a key element of design. The course concentrates on designing with type,

understanding the relationship between type families and type styles, selecting type for emotional impact, and using color and texture in type. Additional topics include font and image copyright requirements, and use of type and images for web and motion graphics. Students work toward creating effective marketing and advertising pieces through the practical application of typography and composition. The use of visual concepts is explored. Development and completion of a variety of assignments place emphasis on methods using page layout software. *Prerequisites: GRDT1016, 1430*

GRDT2400 Adobe Photoshop II   3

This course builds on the tools and techniques learned in Adobe Photoshop I. The student will use and become more proficient with all the tools, especially the adjustment layers, layer styles and layer masks. The actions panel will be used to facilitate work with many photographs. Students will composite photos using various techniques. *Prerequisites: GRDT1010*

GRDT2415 Adobe InDesign II   3

Students will design and produce advanced page layouts using Adobe In Design to further develop skills combining type and images together. Emphasis will be placed on advanced publishing techniques to create complex quality projects for print, interactive publishing and portfolio presentation.

GRDT2420 Adobe Illustrator II   3

This is a project driven course. Specific Adobe lllustrator skill areas covered are blending tools, gradient mesh, graphs and charts, use of path options and brushes. Students will design symbols, ads, packages and campaigns, using these skills. They will create a variety of portfolio quality drawings that reflect their ability to design and use the Illustrator software. *Prerequisites: GRDT1410*

GRDT2721 Graphic Design Career and Portfolio   3

This capstone experience concentrates on preparing students to enter the graphic design job market. Coursework includes career research and development of a professional portfolio, web representation, cover letter, resume and self-promotional materials. Students conduct informational interviews and develop networking skills. These skills will enable the students to better market, manage and promote themselves for positions in-house for a company or starting their own freelance business. Students will use skills learned in software and design coursework to refine or create new projects to include in a portfolio. Students should expect a substantial level of out-of-class time preparation. *Prerequisites: Must be taken in final semester with the majority of degree coursework complete.*

HEAVY EQUIPMENT MAINTENANCE

HCEM1102 General Shop Mechanics - Introduction   3

Students achieve an understanding of skills needed in the heavy equipment industry. Areas covered are safety, hand power-tools, forklift safety, overhead lifting, fasteners, hydraulic fittings and precision measuring.

HCEM1110 Welding and Flame Cutting   2

Students study then practice Arc and MIG welding procedures used in the heavy equipment industry. Welding training with oxygen acetylene will also be taught along with plasma cutting and carbon air arc procedures. General theory and safety is included in all areas.

HCEM1132 Heavy Duty Electrical   3

This is an introduction to electricity as applied to heavy duty equipment covering electronic theory and magnetism. Emphasis is on theory, diagnosis and repair of the following areas: basic starting, charging, lighting, and ignition systems. This course prepares students for heavy duty electronics HCEM1234 through classroom instruction and lab practice.

HCEM1140 Diesel Engine Overhaul I   4

This course teaches engine tear down, failure analysis, cylinder head repair, minor overhaul, and use of proper precision measuring instruments on engines used in heady equipment field. Focusing on brands such as Cat John Deere, Perkins, and Cummings. This course also includes fundamentals of diesel engine design including study of cylinder head and block, lubrication, air intake, exhaust, electrical, cooling, and fuel systems. Safety, time management, organization, and precision measuring are stressed. *Prerequisites: HCEM1101*

HCEM1150 Applied Failure Analysis   2

The student will study Applied Failure Analysis.The course will include basic metallurgy, principles of fractures and principles of wear. The course will discuss how these factors affect the failure of parts as related to the engines, hydraulics and powertrain components used in the heavy equipment industry.We will do case studies from actual part failures from machines used in the industry. The emphasis of this course is to find the root cause of the failure and prevent the failure from occurring again. This course is required by both the diploma and the A.A.S. student.

HCEM1234 Heavy Duty Electronics   3

This course teaches students heavy duty electronics, diagnostics and repair. Hands on training by the students will enhance their knowledge of equipment electronics. Course work will include electrical schematics, symbols, advanced multi-meter training, testing, troubleshooting and repair of electronic monitoring systems. Computerized engine components are also covered. *Prerequisites: HCEM1132*

HCEM1246 Diesel Engine Overhaul II   3

This course teaches engine tear down, failure analysis, cylinder head repair/major overhaul, and precision measurement instruments on heavy duty equipment. Focusing on brands such as Cat John Deere, Perkins, and Cummings. This course also includes fundamentals of diesel engine design including study of cylinder head and block, lubrication, air intake, exhaust, electrical, cooling, and fuel systems. Major tear down and measuring are included along with preventive maintenance, major repair, tune up, testing on stationary and mobile diesel engines used in heavy equipment industry. Safety and troubleshooting are stressed. *Prerequisites: HCEM1101, 1140*

HCEM1250 Brakes   2

Instruction covers hydraulic and pneumatic brake theory and operation, component identification, application, and general repairs on heavy equipment. Safety and troubleshooting are stressed. *Prerequisites: HCEM 1102 or instructor's approval*

HCEM1256 Diesel Engine Tune-up   3

This course includes component identification, testing procedures, problem analysis, valve and injection adjustment, pump replacement, and engine tune-up.

HCEM1262 Preventative Maintenance   2

This course covers proper service intervals, the importance of maintenance records, the knowledge of all oil classifications, refill capacities, importance of contamination control and proper oil sampling.

HCEM1271 CAT Basic Training   2

The student will gain an understanding of the Caterpillar engine and product line with basic fundamentals of the diesel engine.

HCEM2115 Transmissions   4

This is a technical course designed to promote understanding of powershift transmissions used in heavy equipment industry. Theory related to powershift transmissions, torque converters, and manual transmissions. In addition, fundamental principles of hydraulics, gear ratios, disassembly, assembly and adjustment procedures are covered.

HCEM2135 Hydraulics I   3

This is an introduction to basic hydraulic machine courses. The students will study the principals of hydraulic safety, component identification, machine operation, fluids, and 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 manufacturers specifications.

HCEM2145 Hydrostatic Systems   3

Students study basic principles of operations, system components, testing procedures, repair techniques and adjustments. Properly translate repairs to instructor. Positive assessment of safe tooling and diagnostic equipment. *Prerequisites: HCEM1101, 2135 or instructor's approval*

HCEM2177 Machine Electronics I   2

This course will focus on machine electronics. Reviewing Ohm's law along with series and parallel circuits. Sensors used in modern electronic systems will be covered including switches, PWM sensors, analog sensors, speed sensors, on/off solenoids, and PWM solenoids. We will cover electrical schematics, how to read them, find part numbers for electrical components and locate pin locations. We will cover repairs and understanding of electrical connectors for varieties such as Deutsch, Sure Seal, and Tyco/Amp connectors. We will discuss electronic systems fault codes and how to troubleshoot them. We will discuss why we need to calibrate machines and do a live machine recalibration. Identification of main components following OEM specified directions in removing emissions.

HCEM2225 Track Drive Systems   3

This course breaks down the importance of the maintenance on track drive systems. Providing students with a safe practice in machine blocking, track drive component operation, wear standards, and tooling for track drive repair.

HCEM2238 Hydraulics II   3

This course is designed for students with knowledge of hydraulic flow and pressure. Students learn National Standard Institute symbols used in fluid power diagrams. A technical study provides students with operational knowledge of computer-controlled multiple hydraulic systems. Students troubleshoot and diagnose hydraulic system malfunctions.

HCEM2256 Steering Systems   2

This course provides students with basic understanding of steering systems used on Mobile Off Road Equipment (MORE) and support vehicles. The course begins with mechanical systems followed by intensive overview of hydraulic assisted systems used by MORE. Students study principles of operation, components, repair procedures, recommendations, and adjustments.

HCEM2260 Machine Electronics II   2

This course is a continuation of Machine Electronics I. The student will do more in depth study of sensors and switches covered in Machine Electronics I. There will also be more troubleshooting of the sensors on actual machines in the lab. The student will be studying more in depth electrical schematics and electrical systems. The student will be using the Cummins Insight computer program to troubleshoot Cummins engines. The student will repair electrical systems on several different brands of equipment.

HCEM2265 Differentials   2

This course provides students with operational work load knowledge of many OEM mobile off road equipment differentials. Including standard, limited slip, controlled traction, no spin and locking. Covering the principles of operation, gear ratios, disassembly, assembly and adjustment procedures.

HCEM2271 CAT Advanced Training   2

The student will study the operational principals of machine systems such as Air Conditioning, Hydraulics and Powershift Transmissions.

HCEM2280 Climate Control   2

Students will be taught how to perform routine maintenance and troubleshooting procedures in order to identify and repair or fully replace faulty components within a climate-controlled cab in a heavy construction equipment. Air conditioning theory will be discussed. *Prerequisites: HCEM2135*

HEAVY DUTY TRUCK

HDTT1100 Truck Technology Fundamentals   4

This course covers shop procedures and safety in the truck shop such as safety in the use of hand tools, power tools, hoists, jacks, and other equipment used by a heavy duty truck technician. Different types and uses of fasteners, thread repair, and similar procedures will be discussed. Methods of record keeping, repair orders, and the use of repair manuals and related service publications will also be covered. The student will be familiarized with the basic

fundamentals of operating heavy trucks. Included will be pre-start and pre-trip inspection procedures, basic operation of the vehicle, and shut-down procedures.

HDTT1102 Air Brake Systems 5

This course covers the theory of compressed air and its application to the brake system. Air components will be identified, and their functions studied individually as well as within the entire system. Emphasis will be place on general repair and trouble-shooting. The course will cover identification of mechanical components of foundation brake system and their application, including axle and wheel components. Theory of operation, removal, repair and replacement along with diagnostic and testing procedures are covered in this course.

HDTT1104 Air Brake Electronics 2

This course will cover the theory and operation of electronics in air brake systems associated with a heavy duty truck. Students will demonstrate safe shop practices while working on electronic air brake systems. Students will demonstrate identification, troubleshooting and repair of complex electronic systems. Anti-lock braking, rollover stability, and collision avoidance will be discussed and applied using the latest technology.

HDTT1106 Welding Procedures 2

This course covers basic position welding techniques of the different welding applications used in the heavy truck repair industry. This course will cover applications of oxyacetylene welding, brazing, cutting, heating, arc welding, and wire-feed (MIG).

HDTT1109 Fluid Power Systems 2

This course covers the introduction to basic hydraulics and is designed to promote understanding of hydraulic theory and application related to hydraulic systems, tools, and equipment used in heavy duty trucks. The student will study principles of hydraulics, operation, component identification, and preventive maintenance. Also included will be basic information pertaining to heavy truck hydraulic brake components.

HDTT1212 Preventive Maintenance 4

This course covers the importance and proper procedures of preventive maintenance and inspection schedules used for various types of heavy-duty trucks and their applications. Students learn to perform inspections according to the standard of the Department of Transportation (D.O.T.).

HDTT1215 Suspensions and Steering Systems 4

This course covers the identification, inspection techniques, repair, adjustment procedures and alignment checks of components associated with the variety of frames and suspensions common to heavy duty trucks. Students will be instructed in identifying various types of truck steering system and components. The students learn and practice inspection, disassembly, reassembly, and alignment procedures.

HDTT1217 Electrical Systems I 3

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.

HDTT1219 Electrical Systems II 3

This course covers the basic purpose and function of the various truck systems. Battery, Starting and Charging systems will be covered. Electrical theory, application, and diagnosis using specialized testing equipment will be used.

HDTT1223 Truck A/C 3

Students learn heating, ventilation and air condition system theory. Develop necessary skills to operate, test, service and repair HVAC systems.

HDTT2101 Drive Train I 6

This course covers repairing, rebuilding, and diagnosing problems in transmissions and differentials. Students are taught how to remove, inspect, and replace gears, shafts, bearings, seals, and other components using the proper tools and procedures.

HDTT2104 Drive Train II 4

This course covers the theory of operation, repair, removal, inspection, and installation of the clutch and drive shafts.

HDTT2105 Drive Train III 2

This course covers the basic purpose and function of automatic transmissions in the heavy-duty truck industry. Hydraulic theories, application and diagnosis using specialized testing equipment will be used.

HDTT2107 Diesel Fundamentals 3

This course covers the basic theory, operation, and understanding of the two- and four-stroke cycle diesel engine. The compression ignition engine principles and the engine's components will be covered, along with the disassembly, inspection, evaluation, reassembly, and proper torque techniques which are used on this type of engine. The different engine tools and their proper usage will also be covered.

HDTT2110 Diesel Fuel Systems 1

This course will cover the basic operation, theory, and understanding of electronic diesel fuel systems. All fuel system components, their operation, usage, and internal parts will be covered and then tied together to demonstrate connected operation of the fuel system.

HDTT2213 Diesel Engine Fundamentals 4

This diesel engine fundamentals course covers components of the on the highway inline six-cylinder diesel engine. The course will focus on engine overhaul, component inspection, tune up, troubleshooting, and engine emission systems. Cummins, Detroit, and Pacer systems will be covered.

HDTT2216 Diesel Electronics 3

This course covers the basics of the electronically-controlled engines found in the trucking industry today. The components and their usage, testing, diagnosis, repair, and replacement will be covered. The student will be expected to use a wide variety of diagnostic test equipment.

HDTT2228 D.O.T. Certification 1

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.

HDTT2230 Heavy Duty Truck Industry Training 2

This Heavy Duty Trucking Industry Training course is an online only course. Thirty-two hours of industry specific online training are needed. Pacer, Cummins, and Detroit diesel online training modules will be assigned by the instructor.

HDTT2970 Heavy Duty Truck Internship 5

This course is an elective for diploma-seeking students and with the instructor's prior approval, can take the place of HDTT2222. However, this course is required for the A.A.S. Degree student as a three-credit internship. This course will allow the students hands-on experience while working at their place of employment. There is a list of required job tasks which the student will perform on the job thus acquiring valuable work experience.

HEALTH CAREERS

HEAL1061 Nursing Assistant 4

This course introduces concepts of basic human needs and the function of the nursing assistant in long term care and or home health care. Basic nursing skills will be demonstrated and practiced in the laboratory setting. Upon successful completion of classroom studies, the student will participate in 24 hours of supervised clinical experience in a long term care setting. This course is a prerequisite for the Practical Nursing Program. It meets the objectives of Federal State Statutory requirements for nursing assistant training.

Individuals who provide direct contact services to clients of licensed facilities are required to have complete criminal background studies. Disqualified persons will not be permitted to work in these facilities.

HEAL1101 Anatomy and Physiology 4

This four-credit lecture course is designed for students preparing for a career in the medical field. Emphasis will be on anatomical terminology and structure and function of the following components of the human body: cells, tissues, integumentary, skeletal, muscular, nervous, senses, cardiovascular, blood, digestive, reproductive, urinary, endocrine, lymphatic, and respiratory systems.

HEAL1150 Health Career Mathematics 1

This course will assist students in mastering the skills necessary to determine drug dosages. Applicable basic skills will be reviewed, followed by proportions and a study of the metric system and the apothecaries' system. A major portion of the time will be spent solving drug dosage word problems. *Prerequisites: Qualifying scores on ACCUPLACER Arithmetic test.*

HEAL1501 Medical Terminology for Nursing 1

This introductory course in medical terminology for nursing students focuses on accurate spelling and pronunciation of terms and building knowledge of basic medical vocabulary with an emphasis on prefixes, suffixes, roots, and combining vowels.

HEAL1502 Medical Terminology 2

This course introduces students to medical terms and their 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.

HISTORY

HIST1100 History of the United States to 1877 4

This course surveys U.S. History from before European contact through 1877. Topics covered include indigenous peoples, exploration, colonial times, the American Revolution, the early republic, growth of democracy, changing roles of women, territorial expansion, slavery, Civil War and Reconstruction.

Meets MnTC Goal 5

HIST1200 History of the U.S. from 1877 to the Present 4

This course will survey the major historical events of the United States from 1877 to the present. The text emphasizes political and social developments while the secondary readings provide a closer examination of this period's major themes.

Meets MnTC Goals 5 & 7

HIST1320 Civil War to Civil Rights 3 credits

From its inception, the United States struggled to reconcile the idea of freedom with African American slavery. While it seemed as if the Civil War would resolve this dilemma, the end of slavery did not bring the equal rights imagined by African Americans and their allies. It instead led to a battle for even the most basic political and human rights which continued for over a century. This class explores the competing visions of America, from the time of the Civil War through the Civil Rights Movement of the 1960s and how key events of this period still affect us today.

Meets MnTC Goal 5 & 7

HIST1360 World History to 1500 4

This history course explores world civilizations from prehistoric roots to Sumer, Egypt, Assyria, Israel, China and Southeast Asia, India, Greece, Rome, Africa and Europe to the Renaissance. Topics include political, cultural, religious, economic, intellectual and artistic development across regions and time.

Meets MnTC Goals 5 & 8

HIST1361 World History Since 1500 4

This history course explores world civilizations to the present from the Reformation and Enlightenment in Europe to Modern East Asia; the rise of transatlantic and transpacific societies to industrial revolution; and from the emergence of nationalism and the age of ideologies to the global marketplace.

Meets MnTC Goals 5 & 8

HIST1400 American Environmental History 3

This 100% on-line lecture course examines the interaction between humans and the natural world in the United States from the ice age to the present. The course considers such diverse topics as the industrialization and urban growth on the

environment, the emergence of ecology and green politics, and creation of the idea of Nature in American culture. Students will be expected to develop a historical understanding of the major themes of American environmental history; relationships between human activity and pollution, emergence of reform movements and environmental regulations, relationships between increasing urban growth and increasing environmental concern, and the rise of environmental politics in both local and national settings.

Meets MnTC Goals 5 & 10

HIST1450 The History of Minnesota   3

This 3 credit history course explores the history of Minnesota from the ice age and early Native Americans to the events of today. Through a combination of textbooks, internet sites primary sources and an optional field trip students gain an appreciation of the contributions made by those who came before us in the state we now call Minnesota.

Meets MnTC Goal 5

HUMANITIES

HUMA1100 Introduction to Humanities   4

This course emphasizes eight disciplines as they have grown and influenced each other and the societies that produced them through the ages in western history. These disciplines are: literature, art, architecture, philosophy, music, science, religion, and technology. The course will include analysis of written text, pictures, and ideas.

Meets MnTC Goals 6 & 8

HUMA1125 The Humanities in Modern Minnesota   3

This course emphasizes six of the disciplines that make-up the humanities (literature, art, architecture, philosophy, music, science, religion, and technology) and looks at how Minnesotans have been defining and influencing our local and national culture for the past fifty years. The course will include analysis of written texts, art, architecture, music, science, performances, and ideas.

Meets MnTC Goal 6

HEATING, VENTILATION, AIR CONDITIONING & REFRIGERATION

HVAC1100 Alternative Heating and Cooling Methods   2

This course will provide the student with an understanding of alternative heating and cooling applications and installations. Students will gain a fundamental working knowledge of a solar thermal and geothermal heating and cooling system. Including but not limited to how controls work within the system, panel installation, piping and site assessment. Also covered will be gas fireplaces, pellet/corn stoves and wood fired boilers. This course will use lectures, handouts, media presentations, and structured lab to deliver the subject material.

HVAC1110 Indoor Air Quality   1

Indoor air quality is an important consideration for the HVAC technician. This course familiarizes the student with accessories utilized in the HVAC field to improve indoor air quality. Topics

covered include the different types of air filters, electronic air cleaners, UV air purifiers, air quality sensors, fresh air ventilation, humidifiers/dehumidifiers and heat/energy recovery ventilators.

HVAC1120 Refrigeration Principles and Applications   4

This course covers the theory and the basics of residential and commercial compression refrigeration systems. A refrigeration trainer will be built by each student to supplement the theory delivered in the classroom.

HVAC1130 Tool Usage, Brazing and Soldering Techniques   2

This course provides an introduction to the tool commonly used in the HVAC/R industry. Proper use of the individual tools will be discussed and practiced.

HVAC1140 Electric Motors/Controls/Schematics   2

This course covers the operating principles of electric motors and control components used in HVAC/R industry.

HVAC1150 Halide Refrigerants Certification   2

This course provides an understanding of characteristics of common refrigerants used in equipment installed and serviced by HVAC/R technicians. This course also addresses environmental concerns, federal and state regulations (Minnesota and Wisconsin) on refrigerants and procedures, and use of recovery equipment. New refrigerants and methods of leak detection will also be covered. Before completing the course, the student will perform hands on recovery procedure. The course includes approved testing to meet EPA technician certification requirements.

HVAC1160 Employability, Problem Solving and Customer Relations   2

This course covers the study of relationships with co-workers, supervisors, and customers. Also covered are job-seeking and employability skills. Topics include attitudes, behaviors, and techniques for achieving success on the job, human relations, job relocation techniques, informal interviews, job applications, and mathematical problems pertaining to the HVAC/R technician.

HVAC1170 Introduction to Basic Electricity   2

This course covers the fundamental concepts of electricity. Students will utilize Ohm's law, construct basic circuits, and learn the operation of basic test equipment.

HVAC1200 Forced Air Heating Systems   4

The student will identify furnace electrical components and circuits, basic procedures required to service and install standard gas, oil and electric furnaces, belt-drive and direct drive blowers, humidifiers and air filtration techniques.

HVAC1210 Hydronic Heating Systems   2

This course is designed to familiarize the student with boiler safety and operation. Properly operating boiler safety controls, operating controls, proper placement of shut off valves and water level check valves are all very important to boiler operation and customer safety. In addition fluid flow principles, piping design and applications, hot water and steam system operation and maintenance are important aspects for troubleshooting and repair of wet systems. Each is explained with some practical applications during this course. The principles of hydronic heat

are studied, starting with an introduction of hydronic heat, heat load calculations, heat sources, fluid flow, pumps and emitters, and controls.

HVAC1230 Ventilating Systems and HVAC Installation 4

Ventilation systems are an important consideration for an HVAC technician. This course familiarizes the student with sheet metal fabrication and layout procedures. Construction blueprint reading and duct sizing is covered. Individual instruction packets cover air handler service procedure, multizone systems and the basic operation of economizers and make-up air units.

HVAC1240 Air Conditioning and Heat Pump Service 3

Knowledge of the maintenance, servicing and charging of residential and commercial air conditioners and residential heat pumps is covered. The student will replace components, test pressures and temperatures and perform charging and refrigerant recovery procedures. The student also will troubleshoot air conditioners, heat pumps, and rooftop heating-cooling units.

HVAC1250 Commercial Refrigeration 3

The students will learn about various types of commercial refrigeration equipment, the necessary controls, and proper operation. Equipment will include reach in coolers and freezers as well as ice machines. Also covered will be proper maintenance procedures as well as troubleshooting and schematic diagrams.

HVAC2220 Commercial HVAC 3

This course teaches the fundamental theory, operation, maintenance and basic troubleshooting of HVAC systems and components commonly found in commercial buildings such as schools, retail stores, hospitals, small production facilities etc. Equipment covered includes, but is not limited to, chilled and hot water systems, gas/electric packaged units, economizers, variable air volume, building automation and variable frequency drives.

HVAC2900 Internship 1

The purpose of the course is to introduce students to working in the field of HVAC. Using knowledge and skills they have acquired through this program and partnering with local businesses, students will work for a company to gain additional knowledge and skills, and to potentially help students acquire employment.

HVAC2960 Specialized Lab 1

This lab course provides the student with the opportunity of obtaining a higher level of proficiency in performing the equipment service learned in current or previous HVAC courses. The student may be asked to perform instructor requested shop work. This is an elective course that should be used to provide extra lab time for the student. This credit is not a requirement for graduation.

INTERIOR DESIGN

IDES1020 Methods and Materials I 3

This course will introduce the beginning architectural technology or interior design student to the properties and applications of common, as well as new and sustainable residential building materials. This class will cover materials and methods such as: current sustainable

practices in home building, wood stud construction, window installation, roofing, foundations, flashing, etc. These materials and construction methods will then be applied in the Studio I projects.

This course is cross-listed with ARCT1020.

IDES1111 Drafting I 4

This course covers basic skills for generating and reading manual and computer-aided drawings for design and construction. Students will learn industry graphic standards for 2-dimensional drawings, including line quality and drawing nomenclature. Industry standard formatting for various drawing types and sheet sizes will be addressed.

IDES1121 Critical Thinking and Programming 4

This course introduces students to the critical thinking skills used in the design process of interior spaces. Cultural anthropology, anthropometrics, universal design, and ergonomics will be studied. Students will synthesize these factors to generated strategic layouts for interior environments. The initial phases of the design process - programming (gathering project information) and schematic design (develop preliminary concepts) will be explored.

IDES1137 Presentation Techniques I 3

This course covers the process of making visual and verbal presentations. These presentations will be focused on the appropriate industry needs. The visual material will cover sketching and rendering techniques, and the preparation of one-point and two-point perspective drawings. Students will also learn proper techniques and design criteria for board presentation. The verbal component of the class will cover and apply techniques for a successful design presentation.

IDES1207 Residential Studio I 4

This course covers the skills necessary to design both public and private interior spaces in a home. The interior design process will be applied, with an emphasis on the design development phase (refining the design concept and focusing on design details). Sustainable design principles for housing will be introduced, including industry rating systems. Students will investigate furnishings, lighting and finish material sources in progressively complex residential interior design projects.

IDES1211 Drafting II 4

This course covers intermediate skills for generating and reading three dimensional computer-aided drawings for design and construction. Students will generate drawings used throughout the design process, including industry graphic standards and formatting. Students will learn Revit and create a full set of documents.

IDES1218 Commercial Studio I 4

This course covers the skills necessary to design both public and private interior spaces in a commercial setting. The interior design process will be applied, with an emphasis on the design development phase (refining the design concept and focusing on design details). Sustainable design principles for commercial spaces will be introduced. Students will investigate furnishings, lighting and finish material sources in progressively complex commercial interior design projects. Design fundamentals, critical

thinking skills, presentation techniques, and verbal presentation skills will be utilized.

IDES1232 History of Architecture and Interiors 3

This course covers the history of architecture and interiors, from ancient times through the 21st century, with which an interior designer must be familiar for use in industry applications. Particular focus is placed on the history of furniture during these periods.

IDES1241 Presentation Techniques II 3

This course covers computer based design visualization practices. These practices will be focused on the appropriate industry needs. Students will utilize computer based color application techniques to create rendered presentation drawings. Three-dimensional computer modeling processes and digital image editing will be employed. Strategies for effective visual presentations will be integrated into course work, including electronic presentation layouts. Verbal presentation skills will be utilized.

IDES1520 Building Codes and Regulations 3

The goal of this class is to provide you with a fundamental understanding of the International Building Code (IBC), the Americans with Disabilities Act and Energy Codes. The class emphasizes Health, Safety, Welfare (HSW) topics such as: building codes, fire codes, accessibility issues, and environmental issues. Prerequisites: Accepted into NCIDQ Certificate.

This course is cross-listed with ARCT1520.

IDES2108 Color and Light 3

This course continues the study of color principles, theory and psychology, and how color affects people and interior space. Light sources, lighting systems, environmental factors and lighting design methods will also be studied. Students will investigate the dynamics of color and light in interior environments while developing knowledge of lighting techniques and their effects.

IDES2111 Materials and Estimating 4

This course provides students with information that will allow them to establish a systematic approach to selecting materials for interior environments. Students will also create specifications for interior materials, emphasizing code requirements and testing standards. Environmental issues and concerns in relation to the product materials will be addressed. Textiles and their use in residential and commercial interiors are presented. Students will learn the appropriate estimating techniques to determine accurate material amounts for any given job. The overall appropriateness and manufacturing process combined with the use of materials for walls, floors and ceilings will be emphasized.

IDES2138 Commercial Studio II 5

This course covers the interior design of public spaces. The design process will be applied, with emphasis on the design development phase (refining the design concept and focusing on design details) and the contract documentation phase (construction drawings and specifications). Students will continue to address commercial furnishings, lighting and finish materials. Synthesis of design elements and principles, building systems and regulations, sustainable design principles and product application will be used in progressively complex commercial interior design projects.

IDES2147 Residential Studio II 4

This course covers the basics of residential kitchen and bathroom design. The course uses the guidelines published by the National Kitchen and Bath Association (NKBA) as well as universal design and sustainable design principles. Spatial analysis, material and product selection, construction drawings and product specification are addressed. Students will utilize computer software specific to the residential kitchen and bath industry.

IDES2188 Computer Drafting III 3

This course provides students with fundamental knowledge of industry-standard software programs beyond drafting and modeling representation. Bluebeam will be a focus as well as Sketch Up and Adobe Photoshop and InDesign as used in a typical Architecture practice. *Prerequisites: IDES1211*

This course is cross-listed with ARCT2108

IDES2202 Business Practices 3

This course emphasizes the business practices specific to the interior design industry, including professional ethics, organizational procedures, marketing and sales, and business plan components. The course will also focus on exploring career directions in interior design, including tools and information necessary to obtain an internship position upon the completion of interior design course work. *Prerequisites: IDES2107, 2147*

IDES2972 Internship 2

Upon the satisfactory completion of and/or current enrollment in all IDES coursework, this on-the-job training will provide the interior design student with the opportunity to participate in an internship position within his/her determined area of interiors to strengthen skills within a real design environment. Established design goals from IDES 2100 will be applied in selecting the location and type of design specialty more appropriate to each student. The course is completed after the internship assignments, hours worked identified, and a conference wit the student's faculty representative is recorded. Each participant is to complete 80 hours of intern work. *Prerequisites: all other IDES courses*

IDES2973 Internship II 2

Upon the satisfactory completion of IDES AAS and Current enrollment in IDES certificate, this on-the-job training will provide the interior design student with the opportunity to participate in an internship position within his/her determined area of interiors to strengthen skills in a real design environment on a NCIDQ pathway. They will established goals and develop the understanding of CIDA and NCIDQ and prepare for the hours of work and test after.

INDUSTRIAL ENGINEERING

IETA1001 Intro to Industrial Safety and Health 2

This course is designed to align with the Manufacturing Skill Standards Council's (MSSC) assessment and certification system for Safety. The course curriculum is based upon federally endorsed national standards for production workers. This course will introduce OSHA standards relating to personal protective equipment, HAZMAT, tool safety, and confined spaces.

IETA1100 Fundamentals of AC/DC Electricity I 3

This is a foundational course in direct current electricity. This course is designed for students who have no previous experience with electricity. The primary goals of this course are to help individuals acquire a solid foundation in the theories and laws of direct current (DC) electricity, and to apply their knowledge and skills through problem solving, simulation and practical projects.

IETA1200 Fundamentals of AC/DC Electricity II 3

This is a fundamental course in alternating current (AC) electricity. This course is designed for students who have a fundamental knowledge and understanding of the theory and laws of direct current (DC) electricity. The primary goals of this course are to help individuals gain the knowledge and skills necessary to troubleshoot and repair single and three phase AC powered systems and equipment. Individuals will apply these skills through problem solving, simulation, and practical projects.

IETA1300 Mechanical Fundamentals 1 3

This course teaches students the basic knowledge and skills required to install, and maintain pumps, compressors, hoists, rigging and power transmission systems.

IETA1400 Process Controls/Instrumentation I 3

This course covers the fundamental principles of process measurement and control equipment and systems. Students will acquire the knowledge required to read and interpret piping and instrument diagrams, understand the terminology and language of control systems, and control strategies. Students will be introduced to a variety of instruments commonly used in industry for measurement and control.

IETA1500 Print Reading 3

This is a foundational course in industrial print reading. This course is designed for students who have no previous experience with print reading. The primary goals of this course are to help individuals acquire a solid foundation in print reading, mechanical drafting concept, machine layout tools to transfer measurements from drawing to stock. Understand piping and instrumentation diagrams (P&ID).

IETA1600 Welding Basics 2

This course covers basic welding procedures using arc welding and oxy-fuel equipment. One of the major topics of discussion will be safe use of this equipment. Time will be spent in the lab completing welds in various positions with different processes and electrodes. The processes to be covered in this class will be stick welding (SMAW), wire feed (GMAW), Tig (GTAW) Oxy-Acetylene welding, cutting and brazing along with an introduction to other equipment used in welding shops. Students in this course will be non-welding majors where welding may be a useful tool. Course instruction will stress the many situations where it is advisable to have a skilled welder engaged. Knowing your limitations is of the utmost importance.

IETA1700 Fluid Power 4

This course is an introductory course in hydraulics and pneumatics. This course is designed for students who have no previous experience working with hydraulics or pneumatic systems. The primary goals of this course are to help individuals acquire the knowledge and skills required to install, troubleshoot and maintain hydraulic systems.

IETA1800 Mechanical Fundamentals 2 3

This course is a comprehensive introduction to the workings of a modern manufacturing facility in the process industry. Key topics include valves, vessels, motors and turbines, heat exchangers, cooling towers, reactors and distillation, extraction and separation systems, and process instrumentation.

IETA1900 Programmable Logic Controls (PLC) Fundamentals 3

This course covers the knowledge and skills required to install and maintain programmable logic controllers (PLC) in automated control systems. Students will learn to write programs to solve basic control problems, connect sensors and actuators, and configure PLCs.

IETA2000 Boiler Operations and Power Distributions 3

This course teaches basic powerplant technology, powerplant engineering, and energy conversion offered in departments of mechanical engineering and nuclear engineering, including fossil and nuclear power plants. This course includes information on operating and maintaining steam and hot water boilers that are the main source of heating for buildings. Students will be required to obtain a Minnesota Special Boiler Operator license by the end of the course.

IETA2300 Mechanical Fundamentals 3 4

This course is to build on the theories introduced in IETA1800. Students will gain a better understanding of the workings of a modern manufacturing facility in the process industry. Students will be introduced to pumps, compressors, and power transmission systems. In addition, students will gain knowledge of valves, vessels, motors and turbines, heat exchangers, cooling towers, reactors, extraction and separation systems, and process instrumentation.

IETA2700 Intro to Plumbing 2

The course is designed for students to be introduced to residential and commercial plumbing systems. There are numerous factors that are included in a working pluming system, including a supply system, drainage system, venting system, and a rain water system. This course is designed for students to understand the working systems of an existing building and to help with expansion of new systems.

IETA2900 Internship 4

The purpose of the course is to introduce students to working in the field of industrial production or maintenance. Using knowledge and skills they have acquired through this program and partnering with local businesses, students will work for a company to gain additional knowledge and skills, and to potentially help students acquire employment.

INDIVIDUAL STUDIES

IDNS1002 Career and Education Exploration 2 credits

This course will guide students in their first semester through the creation of an individualized degree plan for the Business Management AAS degree program or other participating program at the college. Students will assess their previous education, prior

learning from work and life experience 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. Course can be repeated up to six credits. *Prerequisites: Program advisor approval.*

INDS1020 Critical Thinking for Student Success 2

This course introduces students to basic concepts in critical thinking that support ongoing accomplishment in a modern world. Students will address concepts relevant to criticism, point of view, communication, education, organization, and performance. This course is intended for students in their first or second semester at DCTC.

Meets MnTC Goal 2

INTERDISCIPLINARY STUDIES

INTS1010 Job Search Skills 1

This course is designed to introduce students to the fundamentals of planning and organizing job search strategies. Emphasis is placed on identification of individual goals, assessment of talents, exploration of career options, analysis of the job market, effective use of employment search tools (e.g. resume, cover letters, interviewing, networking), and management of career pathways.

INFORMATION SYSTEMS TECHNOLOGY CAREERS

ISTC1001 Introduction to Information Systems Management 2

This course provides an overview of computer hardware, relational databases, local area networks and programming. Information Systems terminology and industry acronyms associated with data, voice and video are also covered.

ISTC1010 Microcomputer Maintenance 3

This course is designed for the PC novice to learn how to maintain, upgrade, and repair personal computers. Participants will remove and replace motherboards, and various input/output devices. Hard drives maintenance procedures (formatting) and loading operating systems will be covered.

ISTC1015 Supporting Business Applications 3

This course prepares IT students to support end users on the Microsoft Office Suite. This course covers basic computer concepts on computer hardware and desktop application software. Students will learn the fundamentals of word processing, database, and spreadsheet and presentation applications. Students will also be introduced to use of the Internet, online collaboration tools, and outlook. The capstone of the course will cover a comprehensive integration with Office applications.

ISTC1030 Operating Systems I 3

This course covers operating system administration with the use of command line for microcomputers. Topics include booting and

configuring the system, the use of internal commands and external commands, file management, networking, and writing of batch files.

ISTC1033 Operating Systems II 3

This course is designed to provide students with the knowledge and skills necessary to install, configure, manage and troubleshoot desktop clients in a network. Lectures, hands-on projects and exercises reinforce skills as they are learned. Specific topic coverage includes: Installing, Using the System Utilities, Managing File Systems and Storage, Users, Groups, Profiles, and Policies, Security and Access Controls, Network Protocols, Printing and Faxing, Performance Tuning, Working with the Registry, Booting Process, Fault Tolerance, Troubleshooting. *Prerequisites: ISTC1030*

ISTC1045 Network Systems I: Introduction to Networking 3

This course exposes students to networking concepts, technologies, and typical network administration/analysis duties found in the workplace. Topics covered include communication models, network protocols, IP addressing and subnetting, physical and logical topologies, transmission media, and network hardware.

ISTC1050 Database Systems 3

This course focuses on the fundamentals of relational databases; their use, design and implementation. The course will include entity-relationship modeling, logical and physical design and normalization. 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, big data security, and data warehousing. *Prerequisites: ISTC1015*

ISTC1061 Introduction to IT Security 3

This course is designed to investigate the analysis and implementation of network security policies, procedures and guidelines for establishing, monitoring and controlling methodologies for local and wide area networks. The course covers authentication methods, communication security, infrastructure security, cryptography, operational security and firewalls. *Prerequisites: ISTC1045*

ISTC1100 Business Communication 3

This course focuses on the foundations of business communication in the Information Systems Industry. The topics will include developing your business writing skills, correspondence, written and oral business reports, employment communication, as well as topics on the social and ethical implications of Information Systems. *Prerequisites: ISTC1015 and Accuplacer Reading score of at least 70*

ISTC1230 Systems Analysis and Design 3

This course provides coverage of systems analysis and design theories and techniques. Both the traditional, structured approach and the object-oriented approach to systems development will be explored. Students will learn the theory of analysis, design and implementation following the guidelines of the Systems Development Life Cycle. Students will demonstrate system modeling with UML. *Prerequisites: ISTC1300 or equivalent programming experience*

ISTC1300 Introduction to Programming 3

This course provides the beginner programmer with a guide to developing programs using structured programming logic.

Analysis, design, coding, testing and debugging will be covered. 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.

ISTC1510 Web Programming I   3

This course covers skills used to create web pages with a focus on client-side technologies, including such topics as cascading style sheets (CSS), HTML, and JavaScript. *Prerequisites: ISTC1300*

ISTC2006 Network Systems II: Routing and Switching Essentials   3

This course describes the architecture, components, and operations of routers and switches in a small network. Students learn how to configure a router and a switch for basic functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with virtual LANs and inter-VLAN routing in both IPv4 and IPv6 networks. *Prerequisites: ISTC1045*

ISTC2011 Network Systems III: Scaling Networks   3

This course describes the architecture, components, and operations of routers and switches in larger and more complex networks. Students learn how to configure routers and switches for advanced functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with OSPF, EIGRP, and STP in both IPv4 and IPv6 networks. Students will also develop the knowledge and skills needed to implement a WLAN in a small-to-medium network. *Prerequisites: ISTC2006*

ISTC2035 Operating Systems III   3

In this course, the student is expected to learn the procedures underlying server operating systems. The course will cover network design, installing Servers, configuring and optimizing Servers, managing users and groups, disk quotas, basic and dynamic disks, security, and print management. *Prerequisites: ISTC1045, 1033*

ISTC2037 Operating Systems IV   3

System administrators can greatly increase their productivity and efficiency by leaving the GUI wizards behind and incorporating PowerShell into their daily routines. This course will expose students using Powershell in a variety of scenarios using many features included in Windows servers, such as Exchange, IIS, SharePoint, Azure, and Office 365.

ISTC2040 Database Management   3

This course focuses on working with an enterprise-level database management system as well as basic administrative tasks such as installations. The use of Structured Query Language (SQL) will be emphasized as it relates to data definition and data manipulation. Topics also include triggers and stored procedures. *Prerequisites: ISTC1050*

ISTC2050 Data Structures   3

This course introduces the student to the theory, design, and implementation of common data structures and related algorithms. Topics include linked lists, recursion, stacks, queues, search algorithms, sorting algorithms, graphs, and binary trees. Students will write numerous programs to demonstrate comprehension of the course topics. *Prerequisites: ISTC1300*

ISTC2066 Firewalls   3

This course is designed for the network administrator who needs to learn the basics of VPN security and network firewalls. Basic installation techniques are covered along with how to make an intelligent choice of firewall technology. Basic firewall troubleshooting is also presented. This course aligns with the CheckPoint CCSA Certification outline. *Prerequisites: ISTC1060*

ISTC2071 Computer Forensics   3

This course will provide a foundation in the field of Computer Forensics. The student will learn how to obtain and analyze digital information for possible use as evidence in civil, criminal or administrative cases. Topics include applications of hardware and software to computer forensics, computer forensics law, volume and file system analysis, computer forensics investigations, and computer forensics in the laboratory. Hands-on exercises guide discussions and reinforce the subject matter. *Prerequisites: ISTC1015, 1033*

ISTC2080 Cybersecurity   3

The CCNA Cybersecurity Operations curriculum provides an introduction to the knowledge and skills needed for a Security Analyst working with a Security Operations Center team. It teaches core security skills needed for monitoring, detecting, investigating, analyzing and responding to security events, thus protecting systems and organizations from cybersecurity risks, threats and vulnerabilities.

ISTC2100 Project Management   3

This course will provide fundamentals of planning and managing projects for information system (IS) organization. This includes creating components of a 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: ISTC1015*

ISTC2110 Web Programming II   3

This course covers skills used to create dynamic web applications with focus on server-side technologies. Students will learn how to use server-side programming languages to access SQL databases to create dynamic and persistent web applications. *Prerequisites: ISTC1510*

ISTC2150 Virtualization, Storage, and Cloud Technologies   3

This course is designed to provide students with hands-on experience in creating and managing virtualized server environments and high-availability clusters (aka clouds). Topics include hypervisors, virtual machines, PaaS and IaaS options, storage-area networks, administration tools, and related technologies. *Prerequisites: ISTC1060, 2035*

ISTC2315 Java II   3

This course builds on early Java to cover some of Java's more advanced capacities. Topics covered include enterprise-wide development of distributed n-tier client/server applications, Java Database Connectivity (JDBC), server side Java programming (Servlets/JSP), multithreading, collections, and data structures. *Prerequisites: ISTC1300*

ISTC2320 .NET I   3

This course will introduce the student to the .NET application development environment. The student will learn the .NET tools to create applications that correspond to Windows standards. Topics covered include data controls, reports, multiple-document applications, file processing, elementary database interfacing (ADO.NET), and web applications (ASP.NET). 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. *Prerequisites: ISTC1300 or equivalent programming experience.*

ISTC2325 .NET II   3

This course will present advanced topics in .NET application development. Coursework will focus on developing programs in the 3-tier client/server environment. Topics covered include database interfacing using ADO.NET, web applications using ASP.NET, multithreading, collections and interfaces. *Prerequisites: ISTC2320 or equivalent .NET programming experience*

ISTC2330 Cross-Platform Web Application Development   3

This course is designed to introduce students to the concepts of cross-platform application development utilizing web technologies. Students will build web applications that can be deployed to various mobile and desktop operating systems.

ISTC2610 Web Programming III   3

This course focuses on capstone web project development. Students will be completing a capstone project that highlights an interactive web application, using both client and server side technologies. Advanced web development topics will be covered. *Prerequisites: ISTC2110 or equivalent programming experience*

ISTC2970 Internship   3

This course is designed to provide students the opportunity to work within the Information Technology field. Students are expected to observe and apply all of the technical skills learned thus far in their program. Students are also expected to conduct themselves in a manner that would be expected of a full-time employee of the organization they are working for.

MATHEMATICS

MATS0075 Number Sense   1

A short course aimed at pre-program students, especially those needing to prepare for HEAL1150 Health Careers Math. Emphasis is on increasing a student's confidence thinking through practical problems involving arithmetic, fractional quantities (including percent concentration), and especially proportions. Basic multiplication facts will be reinforced as work is done by hand using tables (not calculators). Course meets ninety minutes, twice per week, for eight weeks.

Note: this course is NOT eligible for federal financial aid.

MATS0700 Foundation for College Mathematics   4

Prepares students for introductory level college math courses: ratio and proportion, applications of fractions and percents, linear equations, straight-line graphs and their applications, polynomial arithmetic and factoring. As time permits, further topics may include unit conversions, area and perimeter, and basic probability. Calculator usage will be limited, to help students improve their number sense and number fluency over the course of the term. Visit dctc.edu/admissions/testing-center for all prerequisite options.

MATS0795 Support for College Algebra   2

Corequisite for MATS 1300 College Algebra: All students registering for MATS 1300 should consider registering concurrently for this course as well (using the Guided Self-Placement criteria for DCTC math courses). Intermediate Algebra concepts are presented in the spirit of just-enough/just-in-time support for College Algebra, while also exploring cognitive theories of effective learning habits: elaborative encoding, spaced practice, anti-procrastination techniques, etc. Visit dctc.edu/admissions/testing-center for all prerequisite options.

MATS1000 Math for Welders   3

A course for students enrolling in the Welding program. Topics include operations with whole numbers, fractions, decimals and percents; metric system and unit conversions; perimeter, area and volume of regular and composite shapes; angular measurements; bends, stretchouts, economical layout and takeoffs.

This course DOES NOT meet any requirements of the Transfer Curriculum, it does not meet the general education requirements for A.A.S. degree students and is not a substitute for general electives.

MATS1205 Math for Electricians   3

A first-semester course for students in the Electrical Construction program. Derivation and application of power-wheel formulas; significant figures and engineering notation; circuit analysis using Kirchhoff's laws and systems of equations; right triangle trigonometry with applications; vectors and vector addition; AC sine waves; phasor analysis of an RLC circuit; binary, octal, and hexadecimal number systems; signal distribution; direct and inverse proportions.

Note: This course does not fulfill the union requirement of a year of high school algebra. Students looking to fulfill this requirement should enroll in MATS0700, 1300 or 1340.

MATS1240 Quantitative Reasoning   4

A project-based course using Microsoft Excel, emphasizing conceptual understanding and application of elementary mathematics as it is used and communicated in a variety of everyday contexts (no prior experience with Excel is necessary). Mathematical topics include ratios, rates, percentages, units, descriptive statistics, linear and exponential modeling, correlation, logic, and probability; contexts include (but are not limited to) personal finance and critical examination of current news articles. Written and/or oral presentations will be required. *Prerequisite: MATS0700. See course details in eServices for more prerequisite information.*

Meets MnTC Goal 4

MATS1251 Statistics   4

Fundamental principles of inferential statistics are presented in lecture augmented by computer labs using Excel. Essential topics include sampling methods; descriptive statistics; counting and probability; poisson, binomal, normal and other probability distributions; confidence intervals; hypothesis

testing; inferences from two samples; correlation and regression. Optional topics include goodness-of-fit and contingency tables; ANOVA; nonparemetrics; and statistical process control. *Prerequisites: MATS0700. See course details in eServices for more prerequisite information.*

Meets MnTC Goal 4

MATS1300 College Algebra 4

Linear, quadratic, polynomial, rational, exponential, logarithmic, and other functions are carefully analyzed, with particular emphasis on graphical transformations (shifting, reflecting, stretching and compressing). Additional topics include matrices and Gaussian elimination; solving complex equations, including those in quadratic form and those that must be solved graphically; variation problems; particle motion; optimization problems; composition and inverse functions; arithmetic and geometric sequences; properties of logarithms and exponential/logarithmic equations; exponential growth and decay. *Prerequisite: MATS0700 or see course details in eServices for more prerequisite information.*

Meets MnTC Goal 4

MATS1340 Math for Engineering Technology 4

A course combining elements of college algebra, college trigonometry, and statistics, with a particular focus on topics useful to future engineers or engineering techs. Manipulating literal equations; solving equations analytically and by graphing; solving systems of equations analytically and using matrix solvers; setting up and solving systems of equations for practical applications; trigonometric functions; laws of sines and cosines; vector analysis of forces in static equilibrium; basic concepts of probability; bell curve; confidence intervals and uncertainty analysis; correlation and regression. *Prerequisite: MATS0700 or see course details in eServices for more prerequisite information.*

Meets MnTC Goal 4

MOPAR CAREER AUTOMOTIVE PROGRAM

MCAP1000 Introduction to MCAP 3

This course introduces students to the fundamentals of automotive and electrical and electronic systems. Students will learn about electrical theory and electrical diagnostic strategy using the DVOM. Students will learn about shop safety procedures, how to use vehicle service information, and how to use general shop tools and equipment as they relate to electrical/electronic service and repair.

MCAP1101 Electronics 3

This course covers automotive electrical and electronic fundamentals. Students will learn how to identify and interpret circuit wiring diagrams. Industry recognized procedures for repairing wiring harnesses, connectors, and terminals are demonstrated and practiced in this course. Operation, diagnosis, and repair of automotive series, parallel and relay-controlled circuits are studied using various types of tools and test equipment.

MCAP1102 Vehicle Communications 3

Students in this course will be exposed to complex automotive electronics and computer-controlled circuits. Operation, diagnosis, and repair of vehicle communication networks will be studied using various types of tools and test equipment.

MCAP1103 Body Systems 3

This course covers accessory and power systems such as wipers, headlights, airbags, and seats and the diagnostic and repair procedures using various types of tools and test equipment.

MCAP1201 Chassis 3

This course teaches suspension systems using leaf springs, coil springs, McPherson struts, and torsion bars. Steering systems using manual and power rack and pinion, recirculating ball steering gears, alignment angles and their relationship to vehicle handling. 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 the operation, diagnosis and repair of various types of braking systems.

MCAP1202 HVAC 3

This course covers the principles of air conditioning and types, diagnosis, testing, and repair of air conditioning systems. The course includes practical work on air conditioning systems such as evacuating, replacement of components, charging, recycling, and performance testing. Students will also test and diagnose automotive electronic heating and air conditioning control circuits.

MCAP1203 Diesel 3

This course will focus on diesel engine operation, maintenance, diagnosis, and repair. Students will be able to perform diesel repairs including fuel systems and emission systems.

MCAP1301 Engine Mechanical 3

This course introduces students to the fundamentals of engine mechanical operation, diagnosis and repair. Students will learn about engine theory and engine mechanical diagnostic strategy using various diagnostic tools. Students will learn about engine repair and safety procedures, how to use vehicle service information, and how to use diagnostic tools including scan tools and oscilloscopes in troubleshooting engine mechanical concerns.

MCAP1302 Engine Performance 3

This course covers the operation and servicing techniques required to diagnose and repair automotive computer system related concerns encountered on modern automobiles.

MCAP1303 Hybrid and EV Systems 3

This course will focus on hybrid and electric vehicle operation, diagnosis, and repair. Students will understand the principles behind electric propulsion and high voltage storage systems, proper safety precautions, and how to accurately diagnose these systems used on hybrid and electric vehicles.

MCAP1401 Transmissions 3

This course covers the basic theory of automotive transmissions/transaxles. This includes torque converter operations, planetary gears-sets, clutch assemblies, bands, and hydraulic systems

operations. Students will learn transmission/transaxle operations, diagnosis and repair.

MCAP1402   4

WD and AWD Systems 3 This course covers current automotive 4-wheel drive and all-wheel drive systems used on late model vehicles. Students will learn diagnosis, repairs, and operation of each system.

MCAP1403 Differentials   3

This course covers current automotive differentials used on late model vehicles. Students will learn differential diagnosis, repairs, and operation.

MCAP1501 Dealer Work Experience 1   4

This is on-the-job training at a MOPAR dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college's MCAP staff and MCAP coordinator at the dealership. *Prerequisites: Enrollment in MCAP and successful completion of the previous semester*

MCAP1502 Dealer Work Experience 2   4

This is on-the-job training at a MOPAR dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college's MCAP staff and MCAP coordinator at the dealership. *Prerequisites: Enrollment in MCAP and successful completion of the previous semester*

MCAP1503 Dealer Work Experience 3   5

This is on-the-job training at a MOPAR dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college's MCAP staff and MCAP coordinator at the dealership. *Prerequisites: Enrollment in MCAP and successful completion of the previous semester.*

MCAP1504 Dealer Work Experience 4   5

This is on-the-job training at a MOPAR dealership. The dealer provides coordinated work experience in accordance with the program schedule. Work experience is supervised by the college's MCAP staff and MCAP coordinator at the dealership. *Prerequisites: Enrollment in MCAP and successful completion of the previous semester.*

MEDICAL CODING

MCOD1045 Medical Terminology for Medical Coders   3

Medical Terminology for Medical Coders focuses on the medical language identifying medical term elements, prefixes, suffixes and abbreviations. Construction, definition and pronunciation of terms that relate to the structure and function of the human body, system-related diseases and medical procedures will be addressed. In addition, a variety of medical record reports will be analyzed and interpreted by incorporating the understanding of the medical language.

MCOD1051 Human Diseases   3

This course provides basic information about common disease conditions affecting various body systems. There is a focus on the general principles of disease and signs and symptoms of specific disease processes. Major concepts include diagnostic tests, treatment modalities, and medication protocols related to specific disease processes.

MCOD1361 Health Information Management Essentials   3

Health Information Management (HIM) Essentials teaches about health care records management in the United States. While the focus in on today's healthcare environment students also learn history of healthcare laws. Students demonstrate an understanding of the need for patient consent, the importance of patient privacy and security laws, as well as the vital role specialty societies and accreditation authorities play in HIM. Students gain hands on experience in a simulated electronic record to experience how technology is used in HIM to obtain high-quality patient centered care. Students learn how to navigate within the electronic medical record, abstract meaningful patient data, and strengthen critical thinking skills needed to succeed in the healthcare arena.

MCOD1370 Medical Revenue Cycle   3

The course emphasizes the medical revenue cycle's ten steps that clearly identify all the components needed to successfully manage the medical insurance claims process. Students will learn how broad pressure to control costs in the healthcare industry creates a complex billing environment, including: How payment has shifted from straightforward fee-for-service insurance to a complex mixture of contracts with payers. Why providers must ensure patient satisfaction and also use health information technology effectively and efficiently to receive maximum appropriate payment for their services. Examine additional pressure results from federal government prosecution of health care fraud and abuse as a top policy objective. HIPAA and HITECH have also created new privacy, security, transactions, and code sets laws, including the transition to ICD-10-CM/PCS, that must be implemented. Failure to comply with proper billing and coding procedures can have significant financial and legal consequences.

MCOD1380 Quality and Performance Improvements in Healthcare   3

This course provides a comprehensive introduction to the theory, practice and management of quality improvement processes which focuses on quality of patient care in healthcare organizations. Using real life examples and case studies students learn the components of quality improvement for problem-solving, decision-making, time management, and applying quality tools. This course also covers collecting, analyzing, interpreting, and presenting numerical data relating to healthcare services. Students will apply analytical and graphic tools used in performance and quality improvement.

MCOD1390 Introduction to Pharmacology   2

This course is an introduction to pharmacology principles. Students will learn the classifications of medications and be introduced to generic, trade, chemical and official names for drugs. Common pharmacological abbreviations will be learned. Medications used to treat symptoms and disease for each body system will be introduced. Possible side effects, adverse reactions, and contraindications will be addressed.

MCOD1400 Diagnostic Coding (ICD-10-CM)	3

This hands-on class immerses students into to the ICD-10-CM alpha-numeric diagnostic classification system for physician-based medical coding. Students abstract diagnostic statements from medical case studies and apply the Official ICD-10-CM Guidelines for accurate medical coding. Students learn about human diseases and how the ICD-10-CM classifies different diseases and injuries.

MCOD1410 Procedure Coding (AMA CPT)	3

This course provides an introduction and study of each chapter of the American Medical Association (AMA) Current Procedural Terminology Codes (CPT). Students learn the importance of accuracy in CPT coding. Direct learning occurs as students code medical cases throughout the semester. Current regulations and established AMA guidelines in code assignments are taught in this course. Students learn to use HCPCS Level II codes and modifiers. The class provides a solid foundation in CPT procedural coding

MCOD1421 Leadership in Healthcare	3

This course prepares emerging Medical Coding, Health Information Management & Revenue Cycle students to meet the demands of Leadership and Management in the healthcare setting. Students will learn evidenced based management approaches, skills, and leadership principles.

MCOD1430 Legal Principles for Health Professionals	3

This course introduces legislation for healthcare professionals and medical coding staff. Students learn how Federal and State laws impact patient rights as they study the need for and the importance of informed consent, patient privacy, medical records security, professional liability, and workplace legalities. Compliance with contracts and public duties of health care practitioners are evaluated. Historical case examples are utilized and the need to protect patient rights regardless of race, gender, class, veteran status, sexuality, religion, or ability is emphasized. A variety of ethical issues in health care are explored, as well as an examination of future trends in health care.

MCOD1440 Advanced Coding	3

Advanced Coding further prepares students in hospital and clinic professional fee coding. Specialty medical coding is emphasized. Along with application of AMA CPT procedure codes, HCPC II codes and ICD-10-CM diagnostic codes, students are introduced to the American Dental Association (ADA) procedural coding system and guidelines. Students will be introduced to an electronic encoder and evaluate how this technology assist coders on the job. Critical thinking and use of current resources is taught including the Center for Medicare and Medicaid (CMS) Policies on medical necessity.

MCOD1451 Coding Capstone	4

This course is designed to prepare students to be a Certified Professional Coder (CPC-A), which is a medical coding workforce requirement. The course content is licensed through the American Academy of Professional Coders (AAPC) and focuses on diagnostic and procedural coding skills needed to pass the AAPC CPC examination at the end of the class. Students will use the International Classification of Diseases, the American Medical Association Current Procedures, and the level II Health Care Common Procedure Coding System to code medical cases which represent moderate and complex practical applications of the skills needed in the medical coding career.

MEDICAL ASSISTANT

MDAS1125 Laboratory Skills I	4

This course introduces the medical assistant student to the clinical laboratory. Topics covered in this course are laboratory safety, regulations, microscopes, quality assurance, blood collection, basic math, and spirometry. The student will learn to perform evacuated tube, syringe, and butterfly needle venipuncture, as well as capillary puncture. Performance will be on adults only; infant and child methods will be simulated. Students will be expected to participate as both a phlebotomist and as a patient.

MDAS1132 Clinical Procedures I	4

This course introduces the medical assistant student to the clinical skills required for the health care setting. Topics covered in the course are patient intake, documentation, vital signs, medical asepsis, sterilization of instruments, federal regulations, legal and ethical considerations, assisting providers with exams, sterile technique, first aid and CPR, and coping skills. Students will obtain First Aid/CPR certification. Students must participate as a medical assistant and as a patient.

MDAS1151 Health Care Essentials	2

This course provides a foundation for the knowledge and skills required for medical assistant students, as well as other health care career areas. Students will learn about communication, electronic health records, professionalism, medical documents, the health care team, medical documentation, and health care professions.

MDAS1211 Disease Condition and Medical Treatment, Incl. Nutrition	4

This course covers the disease process, childhood diseases, infectious/communicable diseases, cancer, congenital diseases, and mental health disorders, as well as disease conditions that affect all body systems. Etiology, signs and symptoms, diagnostic testing, and treatment options will be presented. This course also includes basic nutritional concepts

MDAS1223 Laboratory Skills II	4

This course expands on the skills learned in MDAS1125 Laboratory Skills I. The student will participate in waived and moderately complex laboratory collection and testing in the areas of chemistry, immunology, microbiology, hematology, coagulation, and urinalysis. Students will also learn how to apply a Holter Monitor and perform electrocardiography.

MDAS1232 Clinical Procedures II	4

This course broadens the skills learned in MDAS1132 Clinical Procedures I and is paired with MDAS1702 Pharmacology and Math for Medical Assistants to allow for hands-on medication administration skills. Other topics include: assisting providers with exams and procedures, patient specimen collection, rehabilitation and therapeutic modalities, and medical specialties gerontology, ophthalmology, cardiology, gastroenterology, ENT, endocrinology, reproductive, neurology, obstetrics and gynecology, orthopedics, pediatrics, pulmonology, and urology. Students will be expected to participate as a medical assistant and as a patient. Participation in a service learning project is also required.

MDAS1271 Administrative Procedures   3

This course builds on the skills and content learned in MDAS1151 Health Care Essentials and focuses on the administrative responsibilities of a medical assistant. Topics covered will be medical appointments, scheduling procedures, telecommunications, medical coding, medical insurance, electronic health records, written communications, medical documentation, clinic management, human resource management, resumes, and interviewing.

MDAS1702 Pharmacology and Math for Medical Assistants   4

The objective of this content only course is to introduce the medical assistant student to the study of medications, their uses, drug actions, and administration safety in the health care setting. Mathematical skills in relation to calculations of medication dosages will be taught. Medication administration techniques will be explained with demonstration of techniques in MDAS1232 Clinical Procedures II.

MDAS2970 Practicum   6

The practicum experience provides the student with an opportunity to broaden the knowledge and skills learned in the classroom. The student will be placed in a healthcare setting for a total of six weeks, five days a week, eight hours per day, or the equivalent, for a total of 240 unpaid hours. The practicum experience will be supervised.

MDAS2990 Capstone   1

This course focuses on preparing for the national American Association of Medical Assistants (AAMA) certification exam. Time will be spent reviewing all areas of the AAMA Content Outline and reinforcing the knowledge and skills learned in the classroom.

MARKETING COMMUNICATIONS & SALES

MKTC1000 Principles of Marketing   3

Marketing is the building of business relationships between an organization and a consumer. This course examines the business function of marketing. Students will learn how marketers deliver value in satisfying customer needs and wants, determine target markets best served by the organization, and decide upon appropriate products, services, and programs to serve these markets. Students will explore topics including legal issues, consumer behavior, ethics, competition, economics, technology, and global factors affecting product and services, pricing, promotion, personnel, and distribution decisions.

MKTC1100 Fundamentals of Sales   3

Introduction of the basic principles and applications of the sales process as they may apply to industrial, wholesale and retail selling situations. Students will learn to apply these principles and techniques of persuasion to the tasks of selling themselves, ideas, services and merchandise. Techniques include prospecting and qualifying, planning and pre-approaching, approaching the customer, the sales presentation/demonstration, handling objections, closing the sale and post-sale service, follow-up with the customer, and customer relationship management (CRM).

MKTC1150 Consumer and Professional Buying Behavior   3

Course examines the principles of the behavioral sciences of psychology, sociology and anthropology and how these sciences are used in creating marketing communications plans aimed at consumer or business buyers. Specific topics include perception processes, lifestyle analysis, personality psychographics, motivation analysis and influence of groups on buying behaviors. Students gain knowledge including organizational structure, business-to-business buying behavior, and understanding and influencing multiple decision makers.

MKTC2000 Advertising Practices and Procedures   3

Advertising uses both creative and critical thinking skills to create promotional communications to sell products and services to customers. This advertising course is designed to expose students to the many aspects and functions of promotional marketing. Students learn about advertising principles to support the creation and management of media campaigns. Topics discussed in this course include legal, ethical, and social responsibilities of advertisers, engagement and communication with target audiences, consumer behavior theories, uses of various media, relationship advertising, and the process of developing creative strategies.

MKTC2105 Marketing Communications Writing   3

Course examines how to write advertising copy for all areas of marketing communications such as the Internet, public relations, news media, scriptwriting, business writing as well as for print, radio, television and collateral media.

MKTC2506 Digital Marketing   3

Digital marketing uses marketing strategies through electronic devices such as computers, tablets, and other mobile devices to engage with consumers and other business partners. Internet Marketing is a major component of digital marketing. In this course, we will cover the what, why, and how of major current approaches, including online listening and monitoring, search engine optimization, search ads, email marketing, and participating in social media. The course is designed to offer knowledge on digital trends and teach students how to remain current as technology and devices evolve. In addition, students will receive relevant hands-on experience through assignments and exercises.

MKTC2507 Digital Media Tools   3

Explore the world of mobile marketing app, sites, and platforms, along with social media platforms for marketing. Examine the impact of new and emerging technologies available to a marketer. Assess the available new digital media tools to determine which ones make sense for individual businesses. Learn how to implement industry-leader social digital media tools.

MKTC2511 Web Development for Marketers   3

Web development and digital marketing are important in successful marketing campaigns. Web development teams and marketing teams work together frequently, making it important for marketers to have a basic understanding of web development. Students will learn the basic tools of website development and coding to maintain web pages with various popular applications and web development languages. Techniques are taught to design sites that load fast, increase usability, and meet company objectives.

MKTC2515 Digital SEM and Analytics   3

The Digital SEM and Analytics teaches students digital knowledge of advanced search engine marketing and analytics skills. The course examines professional digital marketing execution techniques. The course focuses on the areas of analytics, analysis and reporting, and Search Engine Marketing (SEM). Through content analysis techniques, users learn to increase traffic through digital marketing initiatives such as blogs, paid advertising, and integration with traditional marketing measures.

MKTC2520 Video Content for Marketers   2

Video content marketing involves everything from planning and producing a video to distributing and promoting it. This basic videography course examines the techniques of leveraging the power of marketing with video. The course analyzes the importance of the creation of shareable creative content that encourages engagement and conversion. Students will also learn how to use storytelling through video and optimize visual content for SEO.

MKTC2550 International Marketing   3

This course introduces students to the concepts and disciplines of international marketing. Students develop an understanding of the international environment and its impact on marketing. Topics include social and cultural influences; political, legal and financial considerations; exporting and importing; organizational alternatives; information sources; marketing-entry strategies; pricing and distribution; sales and communications practices; counter trade; and other current international marketing issues.

MKTC2600 Marketing Research   3

This course examines the processes and techniques used in securing, analyzing and creatively using information to identify marketing problems and opportunities. Businesses need current information on which to base their marketing decisions; this course studies research to help business determine marketing strategies and create plans for such objectives as product development, marketing promotional evaluations, operation efficiencies and client satisfaction.

MKTC2605 Data Analytics   3

Take your career to the next level by showcasing your skills in data analytics. This course will teach you data analytics and management through best practices for managing data and preparing it for organizational use. With this knowledge, you'll understand how to analysis to support your organization to achieve goals in growth, productivity, profitability, and performance.

MKTC2815 Business Law   3

Examine workplace issues impacting supervisory responsibilities and explore the influence of ethics on individuals and organizations. You will be introduced to the American legal system. Understand civil, contract, employment, and labor laws and how they affect business, such as harassment, discrimination, TORTS, documentation and terminations.

MKTC2900 Portfolio and Interviewing   1

Students will prepare their portfolios for interviewing and showing potential employers. Students will also learn how to set-up interviews, develop interviewing skills and create their resumes and cover letters for job searches.

MKTC2970 Marketing Internship   —

An internship experience provides the marketing student with an opportunity to explore career interests while applying knowledge and skills learned in courses through a work setting. The experience also helps students gain a clearer sense of what they still need to learn and provides an opportunity to build professional networks.

PHYSICAL EDUCATION

PHED2520 Intercollegiate Men's Soccer I   1

Soccer is a one-credit Physical Education/General Education elective course at Dakota County Technical College. Students in the course are required to be members of either the Men's or Women's varsity soccer team at the college for the entire season and are required to meet the requirements and achieve a grade. Members must be in good standing in order to receive any credit. The major goal of the course is to develop psychological, physical, technical, athletic skills and abilities required to succeed as a college level athlete in the sport of soccer.

PHED2521 Intercollegiate Women's Soccer I   1

Soccer is a one-credit Physical Education/General Education elective course at Dakota County Technical College. Students in the course are required to be members of either the Men's or Women's varsity soccer team at the college for the entire season and are required to meet the requirements and achieve a grade. Members must be in good standing in order to receive any credit. The major goal of the course is to develop psychological, physical, technical, athletic skills and abilities required to succeed as a college level athlete in the sport of soccer.

PHED2525 Intercollegiate Men's Soccer II   1

Soccer is a one-credit Physical Education/General Education elective course at Dakota County Technical College. Students in the course are required to be members of either the Men's or Women's varsity soccer team for the entire season and are required to meet the requirements and achieve a grade. Members must be in good standing in order to receive any credit. The major goal of the course is to develop psychological, physical, technical, athletic skills and abilities required to succeed as a college level athlete in the sport of soccer.

PHED2526 Intercollegiate Women's Soccer II   1

Soccer is a one-credit Physical Education/General Education elective course at Dakota County Technical College. Students in the course are required to be members of either the Men's or Women's varsity soccer team for the entire season and are required to meet the requirements and achieve a grade. Members must be in good standing in order to receive any credit. The major goal of the course is to develop psychological, physical, technical, athletic skills and abilities required to succeed as a college level athlete in the sport of soccer.

PHED2530 Intercollegiate Baseball I   1

Baseball is a one-credit Physical Education/General Education elective course at Dakota County Technical College. Students in

the course are required to be members of the Baseball team at the college for the entire season and are required to meet the requirements and achieve a grade. Members must be in good standing in order to receive any credit. The major goal of the course is to develop psychological, physical, technical, athletic skills and abilities required to succeed as a college level athlete in the sport of baseball.

PHED2535 Intercollegiate Baseball II   1

Baseball is a one-credit Physical Education/General Education elective course at Dakota County Technical College. Students in the course are required to be members of the Baseball team at the college for the entire season and are required to meet the requirements and achieve a grade. Members must be in good standing in order to receive any credit. The major goal of the course is to develop psychological, physical, technical, athletic skills and abilities required to succeed as a college level athlete in the sport of baseball.

PHED2540 Intercollegiate Softball I   1

Softball is a one-credit Physical Education/General Education elective course at Dakota County Technical College. Students in the course are required to be members of the fastpitch softball team at the college for the entire season and are required to meet the requirements and achieve a grade. Members must be in good standing in order to receive any credit. The major goal of the course is to develop psychological, physical, technical, athletic skills and abilities required to succeed as a college level athlete in the sport of softball.

PHED2545 Intercollegiate Softball II   1

Softball is a one-credit Physical Education/General Education elective course at Dakota County Technical College. Students in the course are required to be members of the fastpitch softball team at the college for the entire season and are required to meet the requirements and achieve a grade. Members must be in good standing in order to receive any credit. The major goal of the course is to develop psychological, physical, technical, athletic skills and abilities required to succeed as a college level athlete in the sport of softball.

PHED2560 Intercollegiate Volleyball I   1

Volleyball is a one-credit Physical Education/General Education elective course at Dakota County Technical College. Students in the course are required to be members of the men's varsity volleyball team at the college for the entire season and are required to meet the requirements and achieve a grade. Members must be in good standing in order to receive any credit. The major goal of the course is to develop psychological, physical, technical, athletic skills and abilities required to succeed as a college level athlete in the sport of volleyball.

PHED2565 Intercollegiate Volleyball II   1

Volleyball is a one-credit Physical Education/General Education elective course at Dakota County Technical College. Students in the course are required to be members of the men's varsity volleyball team at the college for the entire season and are required to meet the requirements and achieve a grade. Members must be in good standing in order to receive any credit. The major goal of the course is to develop psychological, physical, technical,

athletic skills and abilities required to succeed as a college level athlete in the sport of volleyball.

PHED2570 Intercollegiate Basketball I   1

Basketball is a one-credit Physical Education/General Education elective course at Dakota County Technical College. Students in the course are required to be members of the men's varsity basketball team at the college for the entire season and are required to meet the requirements and achieve a grade. Members must be in good standing in order to receive any credit. The major goal of the course is to develop psychological, physical, technical, athletic skills and abilities required to succeed as a college level athlete in the sport of basketball.

PHED2575 Intercollegiate Basketball II   1

Basketball is a one-credit Physical Education/General Education elective course at Dakota County Technical College. Students in the course are required to be members of the men's varsity basketball team at the college for the entire season and are required to meet the requirements and achieve a grade. Members must be in good standing in order to receive any credit. The major goal of the course is to develop psychological, physical, technical, athletic skills and abilities required to succeed as a college level athlete in the sport of basketball.

PHILOSOPHY

PHIL1100 Ethics   3

This course is an introduction to the study of ethics. Students will read, discuss, and write about texts written by ancient, modem, and contemporary philosophers. Emphasis will be placed on the practical value of the ideas explored.

Meets MnTC Goals 6 & 9

PHIL1200 Critical Thinking   3

In this course, students will develop skills in the use of informal logic, argument evaluation, and language analysis for addressing problems found on the World Wide Web, in the workplace, and in other everyday environments. Students will address topics related to diversity, media literacy, and philosophy of science. *Suggested Accuplacer reading cut score 240 or higher.*

Meets MnTC Goals 2 & 7

PHIL1250 Introduction to Logic   3

Students will learn to identify, analyze, and evaluate arguments in real-world problems using techniques of formal logic. Covered will be inductive and deductive logic, categorical logic, propositional logic, and natural deduction. Techniques of informal logic will not be addressed. *Prerequisites: recommended placement assessment score.*

Meets MnTC Goal 4

PHIL1350 Medical Ethics   3

This course introduces students to basic issues in medical ethics. Emphasis will be placed on the process of considering ethical theory, ethical principles, and laws in the analysis of specific cases. This course will be of special interest to students in healthrelated programs though students in any program will find the study of

medical ethics worthwhile. *Suggested Accuplacer reading cut score over 78 and completion of ENGL1150*

Meets MnTC Goals 6 & 9

PHIL1460 Philosophy of the Arts and Architecture   —

In this introductory course, students will take a philosophical approach to thinking about painting, photography, film, architecture, music, literature, theater arts, and popular art. Using ideas from a variety of time periods, students will analyze artworks of their own choosing. All students will find this course valuable though it will be of special interest to those in the following programs: Interior Design, Architectural Technology, Graphic Design Technology, Multimedia & Web Design, and Photographic Technology. The 2-credit option and the first 2 credits of the 3-credit option will address the philosophy of the arts in general, and the last credit of the 3-credit option will only· address topics in the philosophy of architecture.

Meets MnTC Goals 2 & 6

PHIL1500 Philosophy of Technology   3

In this introductory course, students will take a philosophical approach to thinking about technology. Students will discuss and criticize texts written by ancient, modern, and contemporary philosophers. Also addressed will be related ethical and political matters.

Meets MnTC Goals 2, 6 & 9

PHOTOGRAPHY

PHOT1050 Camera Skills   2

This course gives the student a introduction to most of the controls and adjustments available on today's complicated digital SLR cameras. Through hands-on projects we will experiment with both manual and automatic exposure controls with a main emphasis in exposure control, depth-of-field, and motion adjustments. Discussion of camera types, lenses types and uses, and accessories will compliment the practice of capturing images that illustrate composition and storytelling. An introduction to management of images and proofing techniques will be included. This course is specially designed for those who plan to make a career out of providing photographic services.

PHOT1100 Introduction to Photography   3

This hands-on introductory course is designed to familiarize students with the industry standard Digital Single Lens Reflex (DSLR) camera. Coursework will cover operation of manually-adjustable DSLR camera functions such as controlling motion, depth of field, ISO, white balance through various indoor, outdoor, and natural lighting conditions. Gaining an understanding of the controls and adjustments will be the key to this course; but students will also be exposed to additional skills such as management and output of images as part of the digital workflow procedures, photographic composition, use of on-camera flash, presentation of finished images, and uses of images in the industry.

PHOT1110 Lighting Basics   2

All photography makes use of some form of lighting and this course will introduce the student to both natural, ambient, and artificial lighting situations. Lighting equipment operation and use light modifiers and meters will be the main emphasis throughout this course. Lighting variables, metering techniques, and light control will be practiced by distinguishing the qualities of light in terms of direction, color, contrast, form, and intensity. This course will give the student an understanding of all types of lighting and practical hands-on experience with meters, lights, and modifiers used both in studios and on location.

PHOT1120 Natural Light Portraits   1

This course covers the use of natural outdoor and window lighting and cameras to produce professional looking portraits. Emphasis will be on the use locations and posing to capture creative images of individuals, couples, small and large groups of people. A critical skill in this area is the ability to use the correct lighting direction, form, intensity, color and contrast to enhance the character and features of the customer. Projects will include typical family, high school senior, on-location, and group portrait techniques. *Prerequisites: PHOT1050, 1110*

PHOT1310 Adobe Lightroom   2

Adobe Lightroom helps photographers organize and manipulate their images. It works hand in hand with Adobe Photoshop and Bridge but adds many new options and features. This course will explore the power and features of Lightroom and how it can import, catalog, save and organize thousands of images and save the photographer a lot of time upfront in the workflow. Then Lightroom's develop and print modules can modify, manipulate and improve digital images in a non-destructive manner. We will wrap up this class with practice outputting images to web, to CD and to labs to create products and images for client viewing. Bring a few hundred images to class for hands-on practice during this class.

PHOT1320 Photoshop for Photographers   2

Photographers not only need to master their digital camera but also master the software that, manipulates, enhances, modifies, and outputs their images for the clients. Of the two main softwares (PhotoShop and Lightroom) used in photography, this course will cover introduce Adobe Photoshop: its tools, editing techniques, non-destructive image enhancement, correction and modification options. Students will practice workflow essentials and image techniques needed by photographers in order to compete successfully in this highly digital field. Skills in the use of the computers operating system and workflow techniques will be covered as well. *Prerequisites: PHOT1310*

PHOT1360 Photography Workshop   —

This course allows the student to choose the types of learning experiences they would like to be involved in. Emphasis is placed on the student and the instructor designing a specific educational goal and clearly defining the intended skills and results to be accomplished. This course will meet the highly creative and unique areas of photography or imaging that are not covered by any other course content. Much of the time the student will be expected to work with minimal supervision. Can be taken multiple times. *Prerequisites: Approval is based on instructor recommendation and a minimum of previous photographic experience.*

PHOT1370 North Shore Photography Workshop   1

This course is a 3-day field trip to the North Shore of Minnesota. Here we explore the tips and techniques of effective nature

photography. We spend part of the time in informative lectures and slide shows held on site with the rest of the time spent in the field under the guidance of the instructor. Topics such as advanced composition, creative use of filters, lens and viewing angles, difficult metering situations and effective equipment operation are covered throughout the workshop. Students will come away with a new appreciation and understanding of nature photography as well as some great images of one of Minnesota's most beautiful areas. *Prerequisites: PHOT1050 or 1100*

PHOT1420 Studio Portraits   2

This course covers the use of studio lighting and cameras to produce professional looking portraits. Emphasis will be on the use of time-proven techniques and equipment to capture creative images of individuals, couples, small and large groups of people. A critical skill in this area is the ability to use the correct lighting and posing to enhance the character and features of the customer. Projects will include typical business, family, high school senior, on-location, and group portrait techniques. *Prerequisites: PHOT1050, 1110*

PHOT1510 Color Management   2

This course builds on the skills introduced in the Prerequisites courses by providing advanced color theory and practical application of digital color management techniques by using various types of calibration equipment. At the heart of this course is a thorough understanding of color theory, color application, color recognition and color adjustments as it relates to the production of high-quality color images. The student will use various monitor calibration and profiling techniques to develop a system of consistent and predictable image quality. An introduction to small and large format printing will enhance the application of these new skills. *Prerequisites: PHOT1310, 1320*

PHOT1523 Film and Darkroom   2

Creating black-and-white prints in a traditional darkroom requires an understanding of the relationship between light, chemical and silver-based materials (photographic film and paper). This class concentrates on the basics of film exposure, film development and the printing of negatives in a traditional 'wet' darkroom. The class will learn to make properly-exposed and -developed negatives. In the printing darkroom, students will work with resin-coated paper, learning to control contrast and density, and exploring techniques such as dodging, burning and solarization. Safe, responsible darkroom habits are a critical part of the course curriculum. By semester's end, each student will have produced a portfolio of black-and-white prints.

PHOT1550 DSLR Video   2

This course is designed to introduce the visual artist/technician to the concepts, uses and operation of digital single lens reflex (DSLR) video cameras. Emphasis will be placed on the use of DSLR camera and video/audio equipment to augment the practice of photography for special events such as weddings, anniversaries, and other events. Camera capture techniques using different compositions, zooms, views and angles will be covered along with basic storyboarding. Basic video editing will cover importing, organizing, clip management, transitions, special effects, and adding audio tracks that can be used to create multimedia presentations. Information on storage and presentation to the client and customer will also be covered. *Prerequisites: PHOT1050, 1310*

PHOT1610 Advanced Software   2

This course will bring the student to the advanced level of image processing by building on the tools and skills from PHOT 1310 Lightroom and PHOT 1320 Photoshop for Photographers. This project-based course will simulate many real-life projects and challenges that a photographer will face in this industry. Some of the skills that students will expected to master will be advanced portrait retouching, non-destructive based editing, image enhancement, corrective techniques, creating composites and solving image problems. *Prerequisites: PHOT1050, 1310, 1320*

PHOT1651 Product Photography   2

In this course, students will take part in the planning, photography, and post-production of product-type photography projects. Emphasis will be given to studio lighting, and students will apply lighting and aesthetic skills to a variety of assignments including architecture, food, still-life objects, glassware, and people. Students will also replicate industry work as they make images according to client specifications regarding size, cropping, file format output, color, and other layout considerations. The student will review and investigate all the variables, controls, and characteristics related to a professional photo shoot in an effort to create a higher quality digital image and a better understanding of the advancing technology. *Prerequisites: PHOT1050, 1110, 1310, 1320, 1420*

PHOT1680 Photo Business Preparation   2

Successful photographers have a set of skills that include time management, organization, marketing, professional ethics, accounting and general business policies. These are the topics covered in this courses all while building a indepth business plan customized to your ideas. The purpose is to prepare the individual for all the aspects of the business side of this industry. Whether the photographer or technician works for themselves as an entrepreneur or is employed by a photography company this knowledge will be beneficial to their success. *Prerequisites: PHOT1050, 1420*

PHOT1740 Macro Photography   2

Macro or close-up photography can be a difficult skill to master, even though it is used in many different areas of the photographic industry. Nature photography, medical and forensic photography, the copy and restoration industry, industrial and commercial photography are just some of the career clusters that benefit from good macro photography skills. Real-life projects in this course will include the use of special macro lenses, ring flashes, and special lighting techniques to capture high-quality close-up images. *Prerequisites: PHOT1050 or 1100*

PHOT1830 Location Portraits   2

Many professional photographers will go to the client's location of choice to take portraits thus prompting the need for proficient with portable lighting equipment and setups. This course covers the use of the combination of portable lighting equipment and ambient location lighting to produce professional looking portraits. Emphasis will be on the simulation of typical location portraits such as senior portraits, family, children, baby-style portraiture. A critical skill in this area is the ability to control the lighting direction, form, intensity, color and contrast in unusual conditions and unique locations. *Prerequisites: PHOT1050, 1110, 1420*

PHOT2560 Digital Printing 2

Using the skills and knowledge from the Color Management course and the skills introduced in the Prerequisites courses the student will print large format and high quality images for clients. The student will use numerous computer systems and printing devices to produce color photographs ranging from wallets to large enlargements. Different substrates, surfaces and ink applications will provide the student with a thorough understanding of many of the options that the client may request. The ultimate test of skills in this area is for a photographer or photo technician to be able to create large high-quality photographs in order to stay competitive in the industry. *Prerequisites: PHOT1310, 1320, 1510*

PHOT2610 Sharing Photos via Internet & Mobile 2

This course will help the student understand the connection between photography and the Internet (World Wide Web). As photography changes with the advent of digital imaging, new marketing display methods introduced, different clients-bases are formed, and unique product delivery methods are being established. In this course, initially the student will explore and research the new photographic concepts born of the internet. Then the student will build an image based web site for display and marketing as well as use on-line photographic printing services. *Prerequisites: PHOT1050 or 1100*

PHOT2620 Advanced North Shore Photo Workshop —

This course is a 3-day field trip to either the north shore or south shore of Lake Superior. Here we explore the tips and techniques of effective and sellable nature images. 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, night and time lapse photography. This advanced workshop will give students appreciation and understanding of creating marketability of fine art nature photography as well as some great images of a new region of the Upper Midwest. *Prerequisites: PHOT1370 (taken twice), 1050*

PHOT2651 Advanced Photo Projects 2

This course will give the student a chance to apply the advanced software skills to reality-based photo projects typically required by clients in this industry. This project-based course will practice advance workflow techniques of client interaction, location shooting, image prep and organizing, advanced editing and delivery of products. Continued practice of advanced, non-destructive based editing will help student master the techniques needed to survive and flourish in this business. *Prerequisites: PHOT1310, 1320, 1610, 1510*

PHOT2710 Portfolio Development 2

This hands-on course will guide the student through the creation of a photography-based portfolio and prepare student for entering the workforce upon graduation. Students will begin by assessing their interests, strengths, goals and clarifying the steps needed to enter into the industry. Concepts in assemble techniques, display options and presentation methods will be at the heart of this course. Upon completion the student will have multiple industry-ready photographic portfolios in preparation for career exploration. Emphasis will be given to the idea that portfolio is a process not a project, and therefore requires planning and continuous review and development. *Prerequisites: Should be taken during the last semester prior to graduation so all required photo courses should be completed with exception of PHOT2650, 2550 and 2510 which are typically taken concurrently.*

PHYSICS

PHYS1050 Introduction to Physics 3

This is an introductory course in Physics and its applications. The course is designed for individuals with no previous experience in physics. In this course students will learn basic theory and application of classical physics in everyday life, and how to apply that knowledge through problem solving, simulation, and laboratory experiments. Topics to be covered include: linear and rotational motion, vectors, forces and equilibrium, work and energy, momentum, properties of solids, liquids and gases, heat and thermodynamics, and waves and sound.

Meets MnTC Goal 3

PHYS1100 College Physics I 4

This course is the first of two courses that cover non-calculus physics topics. These topics include: mechanics, concepts of energy and momentum, basic laws of motion, structure of matter, gas laws, heat and thermodynamics, waves and sound.

Meets MnTC Goal 3

PRACTICAL NURSING

PNSG1010 Foundations of Nursing Practice 4

Foundations of Practical Nursing provides an introduction to the theoretical foundation for focused-assessment and nursing skills. The student is given an opportunity to demonstrate these skills in the laboratory setting. An introduction to the nursing process provides the student with a beginning framework for decision making. The key concepts of teamwork and collaboration, safety, quality improvement, professional identity/behavior, patient/relationship centered care, nursing judgement/evidence based practice, managing care of the individual patient, and informatics/technology are introduced. *Prerequisites: HEAL1060, 1101, 1150, PSYC1350*

PNSG1355 Pharmacology 3

Included in this course is information on pharmacokinetics, pharmacodynamics, common adverse/side effects, and contraindications to drug use. Emphasis is placed on drug classifications and nursing care related to the safe administration of medications to patients across the life span. *Prerequisites: HEAL1061, 1101, 1150, PSYC1350 and acceptance into PN Program*

PNSG1400 Adult Health Nursing I 4

Nursing Care of Adults Health I introduces students to the care of older patients with a focus on health promotion and safety. Emphasis is on common health problems of the adult in restorative and residential facilities as well as safety and end-of-life care. Application of pathophysiology, nutrition and pharmacology are

applied to common diseases within each topic area. Theory topics include: Basic alterations in fluid and electrolytes, oxygenation, cardiac output and tissue perfusion, regulation and metabolism, cognition and sensation, immunity, integument, mobility, digestion, elimination, excretion, physical and psychosocial variations, chronic illness, end of life care, environmental safety and emergency preparedness. *Prerequisites: HEAL1061, 1101, 1150, PSYC 1350 and acceptance into PN Program*

PNSG1410 Adult Health Nursing II 4

Adult Health Nursing II focuses on the care of adults with common medical/surgical health problems. Emphasis is placed on physiological disorders that require management in an acute care facility. Application of pathophysiology, nutrition, and pharmacology are applied to co-morbid diseases within each topic area. *Prerequisites: PNSG1010, 1400, 1355, 1600*

PNSG1600 Clinical I 4

Clinical I provides the student an opportunity to apply nursing judgement using the nursing process to implement safe, patient/relationship centered care in selected settings. The clinical student demonstrates focused assessments, data collection, implementation of skills learned in the lab setting, documents findings and reinforces teaching plans for individual patients with common problems. The student develops communication and customer service skills working with individual patients and team members. *Prerequisites: HEAL1061, 1101, 1150, PSYC1350 and acceptance into PN Program*

PNSG1620 Clinical II 4

Clinical II provides the student an opportunity to apply nursing judgement using evidence based care, critical thinking and clinical judgement to implement safe, patient/relationship centered care to individual patients across the lifespan (including maternal/child/pediatric). The clinical student reflects on the value of patient centered care, teamwork and collaboration, informatics, quality improvement, safety, managing care of the individual patient, and nursing judgement/evidence based care in his/her career as a LPN. *Prerequisites: PNSG1010, 1400, 1355, 1600*

PNSG1755 Behavioral Health Concepts 2

Psychosocial nursing care focuses on the care of patients with psychiatric and behavioral disorders. Emphasis is placed on common psychiatric and behavioral disorders as well as promoting and maintaining the mental health of individuals. Role and standards of practice for mental health nursing, therapeutic communication skills when working wit psychiatric and behavioral disorders, therapeutic modalities including pharmacotherapeutics, anxiety disorders, mood disorders, personality disorders, psychotic disorders, chemical impairment and substance abuse, abuse and violence. *Prerequisites: PNSG1010, 1400, 1355, 1600*

PNSG1805 Maternal and Child Health 2

Nursing Care of Women/Newborns/Children provides an integrative approach to the care of the childbearing woman, newborns, and children. Prominence is placed on normal pregnancies, normal growth and development, and common pediatric disorders. Topics for theory: legal and ethical issues, reproductive health care, antepartum, intrapartum, and postpartum care, newborn care, pediatric emergencies and accident prevention, communicable

diseases, alterations in fluid and electrolytes, oxygenation, cardiac output and tissue perfusion, regulation and metabolism, cognition and sensation, immunity, integument, mobility, regulation and metabolism, ingestion/digestion/absorption/elimination, and excretion. *Prerequisites: PNSG1010, 1400, 1355, 1600*

PNSG2001 Nursing Capstone 2

This course facilitates the transition of the student to the LPN role and to the workplace. Concepts related to career development options that enhance career mobility are reviewed. Standards of practice and the importance of practicing according to state regulations and statutes for the scope of practice for the LPN are examined. *Prerequisites: PNSG1010, 1400, 1355, 1600*

PSYCHOLOGY

PSYC1105 General Psychology 4

This general psychology course is an introduction and overview of the scientific study of behavior and experience. It includes topics like the history of psychology, research methods, perception, learning, human development, intelligence, motivation, social perception and group behavior, and psychological disorders.

Meets MnTC Goals 2 & 5

PSYC1200 Abnormal Psychology 3

This psychology course is an introduction and overview of psychopathology. This course discusses diagnosis, treatment and prognosis of mental disorders and issues impacting mental health professionals.

Meets MnTC Goals 5

PSYC1300 Child and Adolescent Psychology 3

This psychology course is an introduction and overview of the scientific study of child development from prenatal through adolescence. It includes topics like perception, learning, intelligence, motivation, developmental disorders, and parenting and peer influence on the developing child.

Meets MnTC Goal 5

PSYC1350 Lifespan Development 4

This psychology course is an introduction and overview of the scientific study of development throughout the life span from prenatal through old age, death, dying and bereavement from a developmental perspective.

Meets MnTC Goals 5 & 7

PSYC1450 Death and Dying 2

This psychology course is an introduction to the concepts and issues surrounding death and dying. It examines these issues from a theoretical perspective with attention to ethical and moral issues from a multicultural perspective and the impact of death, dying and bereavement throughout the lifespan.

Meets MnTC Goal 5

READING

READ0110 College Reading Boost   1

The course is designed to develop the effective reading and clear thinking skills that are required to be successful in college today.

READ0150 English Reading Essentials   3

This course focuses on reading skills widely recognized as essential for comprehending college-level material. Topics include pre-reading, reading, and post-reading strategies as well as critical thinking to improve comprehensions, increase vocabulary, and develop thoughtful responses to reading with additional emphasis on the close relationship for reading, writing, and critical thinking. *Prerequisites a score of 230-249 on the English and Reading assessment; Corequisite: ENGL0150*

SOCIOLOGY

SOCY1010 Marriage and the Family   3

This course embodies a survey of human relationships. This course will examine and explore both the practical side and the sociological side of human relationships. Topics include dealing with love, conflict, sexuality, parenting, relationship violence and gender roles. The focus of the course is to expose students to the cultural diversity of marriage and the family. To give students a fundamental understanding of the sociological perspective on this topic and apply a theoretical/historical perspective.

Meets MnTC Goal 5

SOCY1110 Introduction to Sociology   3

This course covers the basic concepts and terminology used in sociological studies. Sociology is broadly defined as the study of human social organization and social behavior including its forms and consequences. It will focus on the characteristics of human group life as they relate to the structure of the social environment and its influence on the individual. This course is designed to introduce students to the theories, concepts and areas of inquiry that typically characterize sociological analyses. Students will have the opportunity to examine the ethical/dimensions and issues facing political, social, and personal life as it relates to the topics in Sociology. Students will explore their own citizenship and find ways to apply their ideas and goals to civic learning and service learning through embracing facets of human society and the human condition.

Meets MnTC Goals 5 & 9

SOCY1150 Race and Gender   2

This course is designed to enable students to obtain a greater understanding of various minority/dominant relations in the United States. Global perspectives will also be addressed.

Meets MnTC Goal 5 and Goal 7

SOCY1210 Social Issues Changing World   3

An examination of the many ways in which the United States is interconnected with other societies in a changing world. This changing globalization process and related problems that threaten human well-being are studied from a sociological perspective.

Meets MnTC Goals 5 & 8

SOCY1400 Introduction to Criminal Justice   3

This course will provide an overview of the philosophy of criminal law and deviance, and of the nature and extent of crime in America. The theory, structure, and operation of each of the principle components of the Criminal Justice System (ie. police, courts, and corrections) will be examined in detail. Major topics include the historical foundations of our Criminal Justice System, critique of current sociological theories on crime, analysis of impact of legal and social systems on human behavior, rehabilitation, public safety (including homeland security), and citizen responsibility. We will create a learning environment that takes into account all backgrounds and experiences where we can learn from one another.

Meets MnTC Goals 5 & 9

SPANISH

SPAN1300 Beginning Spanish Language and Culture I   4

This course is designed as an introduction to basic Spanish language skills, including listening comprehension, reading speaking and writing. Student 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.

Meets MnTC Goals 6 & 8

VETERINARY TECHNOLOGY

VTEC1001 Animal Care I   1

Animal Care Duty (ACD) participation is required for successful completion of the Veterinary Technology program and includes: monitoring animal health, giving medications, feeding, providing clean water, cleaning kennels and kennel spaces, sanitizing animal care supplies, and keeping all animal areas cleaned and disinfected. An additional responsibility of animal care duty is notifying the Veterinarian of any animal health concerns and/or emergencies that are noted.

VTEC1002 Animal Care II   1

Animal Care Duty (ACD) participation is required for successful completion of the Veterinary Technology program and includes: monitoring animal health, giving medications, feeding, providing clean water, cleaning kennels and kennel spaces, sanitizing animal care supplies, and keeping all animal areas cleaned and disinfected. An additional responsibility of animal care duty is notifying the Veterinarian of any animal health concerns and/or emergencies that are noted.

VTEC1003 Animal Care III   1

Animal Care Duty (ACD) participation is required for successful completion of the Veterinary Technology program and includes: monitoring animal health, giving medications, feeding, providing clean water, cleaning kennels and kennel spaces, sanitizing animal care supplies, and keeping all animal areas cleaned and disinfected. An additional responsibility of animal care duty is

notifying the Veterinarian of any animal health concerns and/or emergencies that are noted.

VTEC1100 Veterinary Technology Procedures 3

This course is an introductory study of various aspects of the world of veterinary medicine and the role of the veterinary technician within that world. Emphasis is placed on learning the basics of animal identification, husbandry, grooming, animal behavior, and physical examinations. Students learn veterinary office economics and paperwork, medical records management, reminders, financial matters, components to popular veterinary software and the concepts of ethics and professionalism in the work place. *Prerequisites: COMS1020, HEAL1502, ENGL1150, BIOL1500 and acceptance into VET TECH Program*

VTEC1110 Veterinary Laboratory Skills I 3

A general introduction to the veterinary clinical sciences, this course acquaints students with laboratory safety, OSHA regulations, medical asepsis, infection control, zoonotic diseases, glassware, specimen collection, laboratory calculations, and microscopy. This course includes hands-on practice of basic laboratory techniques, veterinary parasitology, an introduction to hematology and urinalysis, and basic calculations required in the veterinary medical laboratory. *Prerequisites: COMS1020, HEAL1502, ENGL1150, BIOL1500 and acceptance into VET TECH Program*

VTEC1120 Calculations for Veterinary Professionals 1

This course instructs the student in the various mathematical calculations and equations used on a daily basis in the medical field. Students will learn calculations involving percentages, fractions, decimals, and ratios, how to convert between different measurement systems, how to calculate patient medication and fluid dosages, and how to apply these methods to real world scenarios. *Prerequisites: COMS1020, HEAL1502, ENGL1150, BIOL1500 and acceptance into VET TECH Program*

VTEC1200 Comparative Anatomy and Physiology 1

This course explores the body systems of small animals using the cat cadaver as a model. A systems approach is used to study basic anatomy and physiology of dogs and cats. Comparative reference will be made to a few important differences in anatomical structures of various large animal and exotic pet species.

VTEC1210 Veterinary Pharmacology 2

This course introduces the student to the development and regulation of drugs and vaccines and their use in veterinary medicine. Commonly used drugs are studied using a body systems approach. Calculation of drug dosages is emphasized and techniques for medication administration to canine and feline patients are also covered. *Prerequisites: COMS1020, HEAL1502, ENGL1150, BIOL1500 and acceptance into VET TECH Program*

VTEC1220 Fundamentals of Veterinary Imaging 3

Radiation safety and imaging techniques commonly used in veterinary medicine are covered in this course. Students develop radiographic technique charts and practice radiography using live animals. They also learn about other imaging techniques used in the medical field. *Prerequisites: VTEC1100, 1110, 1120, 1200, 1210*

VTEC1230 Veterinary Laboratory Skills II 3

As an in-depth study of clinical laboratory procedures, students practice sample collection and handling for hematology, parasitology, blood chemistries, urinalysis, microbiology, cytology and serology. Emphasis is placed on the usefulness of these diagnostic techniques in the context of the animal's overall veterinary care. This course includes discussion of various diseases and disorders evaluated by laboratory testing. Zoonotic disease prevention and biosecurity-safety measures are also covered. *Prerequisites: VTEC1100, 1110, 1120, 1200, 1210*

VTEC1240 Lab and Exotic Animal 2

This course presents the fields of laboratory animal research and zoological medicine, as well as the care and management of exotic pets. Discussion will include husbandry, animal behavior, nutrition identification, restraint, common clinical conditions, nursing procedures, and preventive health care. Mice, rats, rabbits, and other exotic and laboratory animals are utilized to allow bands-on experience. *Prerequisites: VTEC1100, 1110, 1120, 1200, 1210*

VTEC1250 Veterinary Nursing Techniques 3

In this course students learn and practice various aspects of small animal husbandry including kennel management and sanitation, reproductive cycles and management, recognition of and response to emergency situations, preventative medicine, and nursing care. Discussion and practice of specialty physical exams will take place. This course will introduce concepts of first aid, care for critically ill patients, emergency nursing, oncology, cardiology, and neurology. There will be opportunities to perform specific nursing skills on small animals.

VTEC2100 Animal Diseases and Nutrition 2

This course introduces students to the signs, diagnostic methods, and treatments of diseases in domestic animals. Prevention, zoonosis, and client education regarding common diseases will be covered. Animal nutrition, and the use of therapeutic nutrition and dietary management of disease will also be discussed. Diseases of each body system, as well as systemic and oncology cases will be presented. An understanding of animal behavior will be introduced. *Prerequisites: VTEC1220, 1230, 1240, 1250*

VTEC2110 Large Animal 3

This course introduces the livestock and equine industry and the various species of large animal livestock. This includes livestock terminology, breeds, production systems, basic management practices, preventive medicine, lameness examinations and conditions, necropsy procedures and animal products and by-products. Techniques covered will include restraint, behavior, and medical and surgical nursing procedures of large animals and equine. This course includes field trips. *Prerequisites: VTEC1220, 1230, 1240, 1250*

VTEC2120 Anesthesia and Pain Management 3

The course will cover basic anesthetic principles and monitoring. The course applies basic utilization of anesthetic agents, the use and operation of allied machines, monitoring and care of the anesthetized animal patient, and the preoperative considerations and duties for anesthesia. Other topics include understanding of veterinary dental techniques, emergency procedures, and control of post-surgical pain. *Prerequisites: VTEC1220, 1230, 1240, 1250.*

VTEC2131 Vet Surgical Nursing & Dentistry   4

Students will learn the basics of routine veterinary surgical assisting. This course will cover instrumentation, aseptic technique, proficiency in the proper preparation of the operating room and general nursing care. This course will also cover pre-surgery preparation and post-surgical care of small animals, principles of surgery, aseptic technique, fluid therapy, and surgical assisting through practical experience. Other topics include performance of routine veterinary dental prophylactic techniques, emergency procedures, and control of post-surgical pain. *Prerequisites: VTEC1220, 1230, 1240, 1250*

VTEC2960 Special Topics   —

Special topics coursed are designed by faculty to address some unique and specifically identified needs of a group of students to fulfill their program requirements. Such courses are usually delivered as a one-time offering and do not become part of the program. Special topic courses can have a varied credit value and differing prerequisites. *Prerequisites: instructor approval.*

VTEC2970 Veterinary Technology Internship   6

Students participate as Veterinary Technician intern in an off-campus learning experiences in business, industry, and/or the public sector. The student is involved in the day-to-day work of the facility, including restraint and handling of animals, office procedures, clinical laboratory techniques, radiography, pharmacology, and surgical preparation and monitoring. *Prerequisites: Completion with a C or better of all previous VTEC coursework and approval of the program director*

VTEC2980 Veterinary Technician Capstone   1

This course facilitates the transition of the student to the CVT role and to the workplace. Concepts related to career development options that enhance career mobility are reviewed. Preparation and registration for certification by the American Association of Veterinary State Boards (AAVSB) is covered. *Prerequisites: Completion with a C or better of all previous VTEC coursework*

WEB & MULTIMEDIA DESIGN

WEBD1650 Web Content I   3

This course addresses the creating, editing. optimizing and formatting of photo/raster images, vector/drawing images and 3D content at an introductory level for use in web pages and social media. It also address use of raster, vector and web page software for the development of wireframing and screen designs. Software explored includes Adobe Photoshop, Adobe Illustrator and Adobe Dreamweaver.

WEBD1750 Web Content II   3

This course addresses the creating, editing, optimizing and formatting of audio, video, 2D and 3D animated content at an introductory level for use in web pages and social media. Software explored includes Adobe Premiere, Adobe Photoshop and Adobe Animate.

WEBD2681 Multimedia   3

Students will be introduced to Macromedia'a Flash, an object based 2D animation program. Flash is used to create animated segments for use in web pages or multimedia. Basic animation, symbols - unique to Flash, timing, storyboarding, design and software tools will be emphasized. Other Flash tools that are introduced in this course include: masks, motion guides and buttons. ActionScript language code is introduced.

WEBD2685 Web Page Construction I   3

Students will become familiar with the concepts of web page design, construction, and software programs. Emphasis will be on good design process for graphic element creation, logical web page information flow, and site creation. Adobe Dreamweaver, Illustrator, and Photoshop will be used at the primary software tools.

WEBD2690 Web Page Construction II   3

In this class students will become familiar with advanced web page design techniques. The emphasis will be on good design of both graphic elements and logical web page information flow. This advanced course will introduce students to a variety of web page construction software packages and tools. Additionally, issues dealing with file transmission (audio, multimedia interaction) will be discussed.

WEBD2695 UX/UI Design   3

Students will use type and layout skills and interaction design principles to create portfolio quality working interface prototypes for multimedia products. Emphasis will be placed on user interface and experience design, logical information flow, screen design, quality graphic design, and interactivity. This course is project intensive.

WEBD2711 CMS Websites   2

Introduces web content management software and use of templates and plugins to create websites. Emphasis is on tools for creating feature rich websites without ground up programming. Other topics include using template web marketing, shopping cart/e-commerce options and HTML 5 and CSS3.

WELDING TECHNOLOGY

WELD1101 Welding Safety and Theory I   3

This course will give the student a basic introduction to welding and cover basic safety for the welding trade. Theory for Shielded Metal, Gas Metal, Flux Cored, and Gas Tungsten Arc Welding Processes. Theory for Oxygen Fuel, Plasma Arc, and Carbon Arc Cutting/Gouging processes. Also covered is visual inspection and quality standards.

WELD1111 Shield Metal Arc Welding I   3

This course develops the welding skills necessary for the Shield Metal Arc Welding (SMAW) process on carbon steel plate in flat and horizontal positions. IN addition, students develop skills in manual and mechanized Oxygen Fuel Cutting (OFC).

WELD1120 Gas Metal Arc Welding I   2

This course develops the welding skills necessary for the Gas Metal Arc Welding (GMAW) process on carbon steel plate in flat and horizontal positions to be performed in short circuiting and spray arc transfer.

WELD1130 Flux Cored Arc Welding I   2

This course develops the welding skills necessary for the Flux Core Arc Welding (FCAW) process on carbon steel plate in flat and horizontal positions.

WELD1140 Gas Tungsten Arc Welding I   3

This course develops the welding skills necessary for the Gas Tungsten Arc Welding (GTAW) process on mild steel sheet and plate in the flat and horizontal positions to include Plasma Arc Cutting (PAC).

WELD1150 Print Reading I   3

In this course students learn to interpret drawings related to the manufacture of metal products from simple single part drawings to more complex multi-part drawings. Students learn welding symbols, drawing symbols, material specifications, and basic fabrication methods used on blueprint drawings.

WELD1200 Print Reading II   3

Students in this course will demonstrate the use of the American Welding Society (AWS) welding symbol to industry standards. Students will interpret joint design from welding symbols and learn forming and cutting processes shown on engineering drawings. Classification of base materials and wire will be emphasized. *Prerequisites: WELD1150*

WELD1210 Welding Safety and Theory II   3

Upon completion of this course, students will understand metallurgy as it pertains to base metal and its alloying elements. Students will understand basic safety practices associated within the welding industry and will learn about advanced welding processes and cutting technology. Students will interpret code specifications with testing and inspection gauges. *Prerequisites: WELD1101*

WELD1230 Shield Metal Arc Welding II   3

This course develops the welding skills necessary for the Shield Metal Arc Welding (SMAW) process on carbon steel plate in vertical and overhead positions. *Prerequisites: WELD1101, 1111; Corequisite: WELD1210*

WELD1240 Gas Metal Arc Welding II   2

This course develops the welding skills necessary for the Gas Metal Arc Welding (GMAW) process on carbon steel plate, aluminum, and stainless steel. Welds are performed in flat, horizontal, vertical, and overhead positions in short circuiting, spray arc transfer, and pulse mode. *Prerequisites: WELD1101, 1120; Corequisite: WELD1210*

WELD1250 Flux Cored Arc Welding II   2

This course develops the welding skills necessary for the Flux Core Arc Welding (FCAW) process on carbon steel plate in vertical and overhead positions. *Prerequisites: WELD1101, 1130; Corequisite: WELD1210*

WELD1260 Gas Tungsten Arc Welding II   3

This course will develop the skills necessary for the Gas Tungsten Arc Welding (GTAW) process on aluminum and stainless steel sheet and plate in the flat, horizontal, and vertical up positions. *Prerequisites: WELD1101, 1120; Corequisite: WELD1210*

DAKOTA COUNTY
TECHNICAL COLLEGE

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