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your dreams today
at Minnesota West.**





2006-2008 CATALOG

web site: www.mnwest.edu

Campus Addresses and Phone Numbers

Canby Campus

1011 First Street West
Canby, MN 56220
(507) 223-7252
FAX (507) 223-5291

Granite Falls Campus

1593 11th Avenue
Granite Falls, MN 56241
(320) 564-4511
FAX (320) 564-4582

Jackson Campus

P.O. Box 269
401 West Street
Jackson, MN 56143
(507) 847-7920
FAX (507) 847-5389

Pipestone Campus

P.O. Box 250
1314 North Hiawatha Avenue
Pipestone, MN 56164
(507) 825-6800
FAX (507) 825-4656

Worthington Campus

1450 Collegeway
Worthington, MN 56187
(507) 372-3400
FAX (507) 372-5801

Marshall Site

344 W. Main Street, Suite 100
Marshall, MN 56258
(507) 537-7051
FAX (507) 372-7081
<http://training.mnwest.edu/>

Fairmont Site

115 South Park Street
Fairmont, MN 56031
507-235-3385
Fax 507-238-1949

THE MINNESOTA STATE COLLEGES AND UNIVERSITIES SYSTEM

Minnesota West Community and Technical College is a member institution of the Minnesota State Colleges and Universities System. Minnesota State Colleges and Universities System is the largest single provider of higher education in the state of Minnesota. Minnesota State Colleges and Universities System has 54 campuses and includes community colleges, technical colleges, comprehensive community and technical colleges, and universities.

HISTORY OF THE COLLEGE

Minnesota West Community and Technical College is a consolidated community/technical college formed on January 1, 1997 when Southwestern Technical College and Worthington Community College merged.

The four technical campuses, Canby, Granite Falls, Jackson, and Pipestone began as local area vocational schools in the 1960s. They officially merged to become Southwestern Technical College in 1985.

Worthington Community College was established in 1936 as Worthington Junior College. In 1973 the name was changed to Worthington Community College when it was placed under the jurisdiction of the Minnesota Community College System. On July 1, 1995 the merged institution became members of the Minnesota State Colleges and Universities System.

Mission Statement

Minnesota West Community and Technical College is dedicated to serving the varied educational needs of our diverse populations in affordable, accessible and supportive settings.

Mission Goals

1. To provide pre-professional and liberal arts courses which lead to Associate of Arts or Associate of Science degrees. The courses are designed to transfer to a four-year college or university and will apply toward a baccalaureate degree.
2. To provide certificate, diploma, and Associate of Applied Science degree courses for students working to develop and enhance occupational or technical competence leading toward employment or further education.
3. To provide learning opportunities for people of varying ages, backgrounds, and abilities with a particular focus and commitment to retraining and lifelong learning.
4. To provide continuing education, management education, and customized training for professions, businesses, and industries.
5. To provide facilities for programs, activities, conferences, teleconferences, and courses to meet community needs.
6. To provide extended educational opportunities by means of flexible scheduling and delivery.
7. To provide effective and efficient use of resources through partnerships with agencies, other educational institutions, businesses and industries.
8. To provide continuous improvement processes via assessment, evaluation and upgrading of programs and services, and to support the professional development of college personnel.
9. To provide the resources to meet the contemporary standards of facilities, informational resources, technology, and teaching strategies to ensure quality educational outcomes.
10. To provide comprehensive student services enabling academic and personal growth toward lifelong learning.

General Information

Affirmative Action/Nondiscrimination

It is the policy of Minnesota West Community and Technical College to undertake and maintain a program of affirmative and positive action and of nondiscrimination as determined by MnSCU policy 1B.1 in educational opportunities and employment. No person shall be discriminated against in the terms and conditions of employment, personal practices or access to and participation in, programs, services, and activities with regard to race, sex, color, creed, religion, age, national origin, disability, marital status, status with regard to public assistance, sexual orientation, or membership or activity in a local commission as defined by law. Contact Karen Miller, Affirmative Action Officer; 1011 First Street West; Canby, MN 56220. Phone (507) 223-7252 or email karen.miller@mnwest.edu.

Individuals with Disabilities

It is the policy of the College to provide access to and encourage participation in programs, services, and activities to qualified individuals with known disabilities as required by Federal and State statutes.

Students with certain types of disabilities should be aware that some programs and courses require specific physical abilities. Please consult with the instructor and/or counselor for advisement and accommodations prior to enrollment.

Consumer Information/Student Right to Know

Minnesota West Community and Technical College, in compliance with the Title VI of the Educational Amendments of 1976 to the Higher Education Act and subsequent Federal Legislation, will provide and disseminate consumer information to all prospective and enrolled students. This information shall include, but not be limited to the following: admission requirements, financial aid programs, costs, job placement, probation policy, campus crime statistics, student retention, refund policy, and transfer. Students who do not have a high school diploma or GED can obtain one while attending Minnesota West. The Campus CEO, Registrar, or the Student Services staffs on each campus are designated as the persons available to all enrolled students and prospective students regarding consumer information. This information is made available upon request through publications and mailings.

Data Privacy

All actions concerned with data collected and filed or stored at the College shall be administered in compliance with the provisions of Minnesota Statutes, Section 13.01 to 13.87. The President or designee shall be the responsible authority concerning Directory Information or Public Data, Private Data, and Confidential Data.

Accreditations and Approvals

Minnesota West Community and Technical College is a member of the **Minnesota State Colleges and Universities System** [www.mnscu.edu], which consists of 34 state universities, community and technical colleges.

The College is **accredited** by the Higher Learning Commission.
[www.mnwest.edu/fileadmin/images/about/nca04.pdf]

The Commission also accredits Minnesota West Distance Education degrees. The commission may be contacted at the following address:

The Higher Learning Commission
30 North LaSalle Street, Suite 2400
Chicago, IL 60602-2504
Phone (800)621-7440

The college and its programs are approved and accredited by the following: Minnesota State Colleges and Universities, American Dental Association, Commission on Accreditation of Allied Health Education, Minnesota Board of Nursing, Minnesota Board of Peace Officer Standards and Training, Minnesota Department of Agriculture, Minnesota Department of Commerce Board of Cosmetology, Minnesota Department of Rehabilitation Services, Minnesota State Approving Agency for Veterans Education, National Accreditation Agency for Clinical Laboratory Sciences, and the United States Department of Education.

Commission on Accreditation of Allied Health Education
35 E. Wacker Drive, Suite 1970
Chicago, IL 60601-2208
312-553-9355

* The Minnesota West Community and Technical College Medical Assisting Program is accredited by the Commission on Accreditation of Allied Health Education (www.caahep.org) upon the recommendation of the Curriculum Review Board of the American Association of Medical Assistants Endowment (AAMAE).

Contact information may be found at
<http://www.mnwest.edu/about-minnesota-west/accreditations/>

Disclaimer

Minnesota West reserves the right to cancel, postpone and re-schedule course offerings as necessary. This catalog is produced from materials available at the time of publication. The college also reserves the right to make changes in catalog information when necessary to correct errors

For the most recent information see www.mnwest.edu. This document can be made available in alternative formats such as large print, Braille, or audio tape.

ACADEMIC PROGRAMS

General Education and The Minnesota General Education Transfer Curriculum

Students who complete the Minnesota General Education Transfer Curriculum (MTC) and then transfer to any other Minnesota public baccalaureate degree-granting university will have fulfilled all lower division general education requirements. There are ten goals within the required credits. One course may fulfill a maximum of two goals; however, credits will only be counted once in total.

The MTC is a framework that integrates a body of knowledge and skills with a study of contemporary concerns – all essential to meeting an individual's social, personal and career challenges. Competencies needed are identified as common membership in the human community; personal responsibility for intellectual, lifelong learning; an awareness that we live in a diverse world; and the basic skills of discovery, integration, application and communication.

Minnesota West has approved the courses that fulfill the transfer curriculum. Approved courses must be accepted for full credit in that academic area at the receiving institution.

Area 1. Communication

Goal:

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. Writing competency is an ongoing process to be reinforced through writing-intensive courses and writing across the curriculum. Speaking and listening skills need reinforcement through multiple opportunities for interpersonal communication, public speaking, and discussion.

Student Competencies: Students will be able to:

- understand/demonstrate the writing and speaking processes through invention, organization, drafting, revision, editing, and presentation.
- participate effectively in groups with emphasis on listening, critical and reflective thinking, and responding.
- locate, evaluate, and synthesize in a responsible manner material from diverse sources and points of view.
- select appropriate communication choices for specific audiences.
- construct logical and coherent arguments.
- use authority, point-of-view, and individual voice and style in their writing and speaking.
- employ syntax and usage appropriate to academic disciplines and the professional world.

Area 2. Critical Thinking

Goal:

To develop thinkers who are able to unify factual, creative, rational, and value-sensitive modes of thought. Critical thinking skills will be taught and used throughout the general education curriculum in order to develop students' awareness of their own thinking and problem-solving procedures. To integrate new skills into their customary

ways of thinking, students must be actively engaged in practicing thinking skills and applying them to open-ended problems.

Student Competencies: Students will be able to:

- gather factual information and apply it to a given problem in a manner that is relevant, clear, comprehensive, and conscious of possible bias in the information selected.
- imagine and seek out a variety of possible goals, assumptions, interpretations, or perspectives which can give alternate meanings or solutions to given situations or problems.
- analyze the logical connections among the facts, goals, and implicit assumptions relevant to a problem or claim; generate and evaluate implications that follow from them.
- recognize and articulate the value assumptions which underlie and affect decisions, interpretations, analyses, and evaluations made by ourselves and others.

Area 3. Natural Sciences

Goal:

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. As a basis for lifelong learning, students need to know the vocabulary of science and to realize that while a set of principles has been developed through the work of previous scientists, ongoing scientific inquiry and new knowledge will bring changes in some of the ways scientists view the world. 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. Students should be encouraged to study both the biological and physical sciences.

Student Competencies: Students will be able to:

- demonstrate understanding of scientific theories.
- formulate and test hypotheses by performing laboratory, simulation, or field experiments in at least two of the natural science disciplines. One of these experimental components should develop, in greater depth, students' laboratory experience in the collection of data, its statistical and graphical analysis, and an appreciation of its sources of error and uncertainty.
- communicate their experimental findings, analyses, and interpretations both orally and in writing.
- evaluate societal issues from a natural science perspective, ask questions about the evidence presented, and make informed judgments about science-related topics and policies.

Area 4. Mathematical/Logical Reasoning

Goal:

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. Students will learn to apply mathematics, logic, and/or

statistics to help them make decisions in their lives and careers. Minnesota's public higher education systems have agreed that developmental mathematics includes the first three years of a high school mathematics sequence through intermediate algebra. (Recommendation from the intersystem Mathematics Articulation Council. Adopted by all systems in February 1992.)

Student Competencies: Students will be able to:

- a. illustrate historical and contemporary applications of mathematical/logical systems.
- b. clearly express mathematical/logical ideas in writing.
- c. explain what constitutes a valid mathematical/logical argument (proof).
- d. apply high-order problem-solving and/or modeling strategies.

Area 5. History and the Social and Behavioral Sciences
Goal:

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.

Student Competencies: Students will be able to:

- a. employ the methods and data that historians and social and behavioral scientists use to investigate the human condition.
- b. examine social institutions and processes across a range of historical periods and cultures.
- c. use and critique alternative explanatory systems or theories. develop and communicate alternative explanations or solutions for contemporary social issues.

Area 6. The Humanities and Fine Arts

Goal:

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. Through study in disciplines such as literature, philosophy, and the fine arts, students will engage in critical analysis, form aesthetic judgments, and develop an appreciation of the arts and humanities as fundamental to the health and survival of any society. Students should have experiences in both the arts and humanities.

Student Competencies: Students will be able to:

- a. demonstrate awareness of the scope and variety of works in the arts and humanities.
- b. understand those works as expressions of individual and human values within an historical and social context.
- c. respond critically to works in the arts and humanities.
- d. engage in the creative process or interpretive performance.
- e. articulate an informed personal reaction to works in the arts and humanities.

Area 7. Human Diversity

Goal:

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.

Student Competencies: Students will be able to:

- a. understand the development of and the changing meanings of group identities in the United States' history and culture.
- b. demonstrate an awareness of the individual and institutional dynamics of unequal power relations between groups in contemporary society.
- c. analyze their own attitudes, behaviors, concepts and beliefs regarding diversity, racism, and bigotry.
- d. describe and discuss the experience and contributions (political, social, economic, etc.) of the many groups that shape American society and culture, in particular those groups that have suffered discrimination and exclusion.
- e. demonstrate communication skills necessary for living and working effectively in a society with great population diversity.

Area 8. Global Perspective

Goal:

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.

Student Competencies: Students will be able to:

- a. describe and analyze political, economic, and cultural elements which influence relations of states and societies in their historical and contemporary dimensions.
- b. demonstrate knowledge of cultural, social, religious and linguistic differences.
- c. analyze specific international problems, illustrating the cultural, economic, and political differences that affect their solution.
- d. understand the role of a world citizen and the responsibility world citizens share for their common global future.

Area 9. Ethical and Civic Responsibility

Goal:

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. While there are diverse views of social justice or the common good in a pluralistic society, students should learn that responsible citizenship requires them to develop skills to understand their own and others' positions, be part of the free exchange of ideas, and function as public-minded citizens.

Student Competencies: Students will be able to:

- a. examine, articulate, and apply their own ethical views.
- b. understand and apply core concepts (e.g., politics, rights and obligations, justice, liberty) to specific issues.
- c. analyze and reflect on the ethical dimensions of legal, social, and scientific issues.
- d. recognize the diversity of political motivations and interests of others.
- e. identify ways to exercise the rights and responsibilities of citizenship.

Area 10. People and the Environment

Goal:

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.

Student Competencies: Students will be able to:

- explain the basic structure and function of various natural ecosystems and of human adaptive strategies within those systems.
- discern patterns and interrelationships of biophysical and sociocultural systems.
- describe the basic institutional arrangements (social, legal, political, economic, religious) that are evolving to deal with environmental and natural resource challenges.
- evaluate critically environmental and natural resource issues in light of understandings about interrelationships, ecosystems, and institutions.
- propose and assess alternative solutions to environmental problems.
- articulate and defend the actions they would take on various environmental issues.

Minnesota West courses that fulfill the Minnesota Transfer Curriculum

Area 1. Communication

Student Requirements: Students will fulfill this area by completing:

- ENGL 1101 Composition I
- Choose one of the following: ENGL 1102 Composition II, ENGL 2243 Creative Writing, or ENGL 2276 Technical Writing
- SPCH 1101 Introduction to Speech

Area 2. Critical Thinking

Student Requirements: Students will fulfill this area by: Most courses teach one or more of the critical thinking student competency areas. Any student who completes 40 credits of general education will have completed the student requirements for Critical Thinking.

Area 3. Natural Sciences

Student Requirements: Students will fulfill this area by: Completing a minimum of two science courses.

- One course must be from Biology:
BIOL 1100 Survey of Biological Science (3)
BIOL 1110 Principles of Biology (4)
BIOL 1115 Human Biology (3)
BIOL 2201 Anatomy (4)
BIOL 2202 Physiology (4)
BIOL 2220 Animal Biology (4)

BIOL 2230 Plant Biology (4)
BIOL 2240 Genetics (3)
BIOL 2250 Anatomy & Physiology I (4)
BIOL 2260 Anatomy & Physiology II (4)
BIOL 2270 Microbiology (4)

- One course must be from Chemistry or Physics:
CHEM 1100 Introduction to Chemistry (3)
CHEM 1101 General Inorganic Chemistry I (4)
CHEM 1150 Survey of Chemistry (4)
PHYS 1100 Survey of Physics (3)
PHYS 1201 Fundamentals of Physics I (4)
PHYS 2121 General Physics I (5)

Area 4. Mathematical/Logical Reasoning

Student Requirements: Students will fulfill this area by: Completing any one of the listed courses:

- Any 3-5 credit Math course numbered MATH 1105 or higher:
MATH 1105 Introduction to Probability and Statistics (4)
MATH 1107 Concepts in Math (3)
MATH 1111 College Algebra (3)
MATH 1113 Pre-Calculus (4)
MATH 1121 Calculus (4)
- PHIL 1200, Logic (3)

Area 5. History and the Social and Behavioral Sciences

Student Requirements: Students will fulfill this area by: Completing a minimum of 9 credits from three of the following areas:

Economics

ECON 1101 Introduction to Economics (3)
ECON 2201 Principles of Macroeconomics (3)
ECON 2202 Principles of Microeconomics (3)

Geography

GEOG 1100 Introduction to Geography (3)
GEOG 1101 Introduction to Physical Geography (4)
GEOG 2140 Introduction to Meteorology (3)
GEOG 2250 Minnesota Geography (3)

History

HIST 1101 American History I (4)
HIST 1102 American History II (4)
HIST 1105 Minnesota History (3)
HIST 1111 Western Civilization I (3)
HIST 1112 Western Civilization II (3)

Political Science

PSCI 1101 Introduction to Political Science (3)
PSCI 1201 American Government and Politics (3)
PSCI 2202 State and Local Government (3)
PSCI 2210 Environmental Politics (3)

Psychology

PSYC 1101 Introduction to Psychology (4)
PSYC 1111 Psychology of Adjustment (3)
PSYC 1140 Child and Adolescent Psychology (3)
PSYC 1141 Psychology of Adulthood & Aging (2)
PSYC 1150 Developmental Psychology (3)
PSYC 2221 Abnormal Psychology (3)
PSYC 2223 Psychology of Gender (3)
PSYC 2225 Addictive Behaviors (3)
PSYC 2230 Behavior Modification (3)

Sociology

SOC 1101 Introduction to Sociology (3)
SOC 1102 Social Problems (3)
SOC 2210 Marriage and the Family (3)
SOC 2220 Family Life Dynamics (3)
SOC 2224 Racial and Ethnic Minorities (3)
SOC 2230 Juvenile Delinquency (3)

Area 6. The Humanities and Fine Arts

Student Requirements: Students will fulfill this area by:
Completing a minimum of 9 credits from three of the
following departments (note: a minimum of two credits
must be taken from each of the three countable areas):

Art

ART 1101 Beginning Drawing (3)
ART 1103 Display and Exhibition (1)
ART 1114 Watercolor (3)
ART 1115 Beginning Painting (3)
ART 1118 Arts and Crafts (3)
ART 1120 Art Appreciation (3)
ART 1124 Introduction to Ceramics (3)
ART 2201 Intermediate Drawing (3)
ART 2215 Intermediate Painting (3)
ART 2224 Intermediate Ceramics (3)
ART 2230 Computer Graphics (3)
ART 2232 Advanced Computer Graphics (3)
ART 2235 Special Topics (1-3)
ART 2240 Art History (3)
ART 2245 Art History II (3)

English

ENGL 2243 Creative Writing (3)
ENGL 1105 Introduction to Literature (3)
ENGL 2201 American Literature I (3)
ENGL 2202 American Literature II (3)
ENGL 2221 British Literature I (3)
ENGL 2222 British Literature II (3)
ENGL 2203 Midwestern Literature (3)
ENGL 2231 Classical Mythology (3)
ENGL 2235 Special Topics in Literature (1-3)

History

HIST 1111 Western Civilization I
HIST 1112 Western Civilization II

Humanities

HUM 2121 The Turbulent '60s (4)
HUM 2201 The Many Faces of Mexico (2)

Music

MUSC 1101 Fundamentals of Music (3)
MUSC 1104 American Popular Music (2)
MUSC 1105 Enjoying Music (3)
MUSC 2250, 2260 Theory of Music (3)
MUSC 1106, 2106 Jazz Band (1)
MUSC 1107, 2108 Concert Band (1)
MUSC 1111, 1112, 2111, 2112 Chorale (1)
MUSC 1131, 1132, 2131, 2132 Pop Singers (1)
MUSC 1140, 1141, 2140, 2141 Piano Lessons (1)
MUSC 1145, 1146, 2145, 2146 Vocal Lessons (1)

Philosophy

PHIL 1101 Introduction to Philosophy (3)
PHIL 1102 Philosophy of Religion (2)
PHIL 2205 Business Ethics (2)
PHIL 2201 Introduction to Ethical Theory (1)
PHIL 2202 General Applied Ethics (1)
PHIL 2231 Western Religions (1)
PHIL 2232 Eastern Religions (1)
PHIL 2233 Natural Religions (1)

Theater

THTR 1101 Introduction to Theater (3)
THTR 1102 Acting Basics (2)
THTR 2122 Introduction to Film (3)
THTR 2210 Oral Interpretation (3)
THTR 2235 Special Topics (1-3)
THTR 1105, 1106, 2105, 2106 Theater Production (1)

Area 7. Human Diversity

Student Requirements: Students will fulfill this area by:
Completing any one of the listed courses (2 credit
minimum):

1. ENGL 1105 Introduction to Literature
2. ENGL 2201 Survey of American Literature I
3. ENGL 2202 Survey of American Literature II
4. *ENGL 2235 Special Topics in Literature
5. HIST 1101 American History I
6. HIST 1102 American History II
7. HUM 2201 The Many Faces of Mexico
8. HUM 2121 The Turbulent 60's
9. *HUM 2235 Special Topics in Humanities
10. PSYC 1101 Introduction to Psychology
11. PSYC 1111 Psychology of Adjustment
12. PSYC 1140 Child & Adolescent Psychology
13. PSYC 1141 Psychology of Adulthood & Aging
14. PSYC 1150 Developmental Psychology
15. PSYC 2223 Psychology of Gender
16. *PSYC 2235 Special Topics in Psychology
17. SOC1102 Social Problems
18. SOC 2210 Marriage and the Family
19. SOC 2224 Racial & Ethnic Minorities
20. *SOC 2235 Special Topics in Sociology

* Special topics classes are presented to the Curriculum Committee prior to being taught. They are accepted as credits in a transfer curriculum area only if it is satisfactorily documented to the Curriculum Committee that

more than 50 percent of the student competencies listed for that area are accomplished.

Area 8. Global Perspective

Student Requirements: Students will fulfill this area by: Completing any one of the listed courses for a minimum of 2 credits:

1. ART 2240 Art History I
2. ART 2245 Art History II
3. ENGL 2221 Survey of British Lit I
4. ENGL 2222 Survey of British Lit II
5. GEOG 1100 Intro to Geography
6. HIST 1111 Western Civilization I
7. HIST 1112 Western Civilization II
8. NSCI 1100 Issues in the Environment
9. PHIL 2231 and 2232 or 2233
10. PSCI 1101 Intro to Political Science
11. SPAN 2201 Spanish III
12. SPAN 2202 Spanish IV

Area 9. Ethical and Civic Responsibility

Student Requirements: Students will fulfill this area by: Completing any one of the listed courses for a minimum of 2 credits:

1. NSCI 1100 Issues in the Environment
2. PHIL 2201 Introduction to Ethical Theory
3. PHIL 2202 General Applied Ethics
4. PHIL 2205 Business Ethics
5. PHIL 2222 Medical Ethics
6. PSCI 1201 American Government and Politics
7. PSCI 2202 State and Local Government

Area 10. People and the Environment

Student Requirements: Students will fulfill the area by: Completing any one of the listed courses (2 credit minimum):

1. NSCI 1100 Issues in the Environment
2. PSCI 2210 Environmental Politics
3. GEOG 1101 Intro to Physical Geography

Note: Students who did not take two years of a world language in high school may need one year of college credits in a language to meet state university preparation requirements.

TRANSFER INFORMATION

Transferring to Other Institutions

Professional and pre-professional coursework is designed for transfer to four year colleges and universities. Students who earn the Associate in Arts degree from Minnesota West have completed the requirements for the Minnesota Transfer Curriculum. The Associate in Science degree is designed to transfer to a baccalaureate major in a related scientific or technical field, or may be designed for employment. Students planning to transfer and who have made the proper selection of course work, and maintained grades of "C" or better, may expect to transfer without loss of credit

Career coursework is designed to provide training for employment in technical and semiprofessional job situations. Students earn the Associate in Applied Science, a Diploma or a Certificate in career programs. The amount of credit allowed in transfer will depend on the program of study, grades earned in this course work, and the college to which the student is transferring. The receiving institution will make the decision as to the credits they will allow to transfer.

Articulation agreements facilitate credit transfer and provide a smooth transition from one related degree program to another. Minnesota West has formed articulation agreements with a number of public and private institutions of higher learning in Minnesota and South Dakota to assist students with their transfer goals.

If you are planning to transfer to another institution from Minnesota West, it is important that you prepare to transfer.

You should review the Minnesota General Education Transfer Curriculum. It is a collaborative effort among Minnesota's college and universities to help students transfer their work in general education between schools. Minnesota West has approved the courses that fulfill the transfer curriculum. Use the Degree Audit Reporting System (DARS) to tell you where you are with overall degree requirements.

You can get an idea of how other Minnesota colleges accept Minnesota West courses by visiting Course Applicability System (CAS) and viewing the dynamic Course Equivalency Tables.

Course Applicability System (CAS)

CAS is a free web-based transfer information system that can be accessed by any Internet user.

Users have direct access to information on courses, course equivalencies, and program requirements among participating institutions across Minnesota and the United States. CAS enables you to immediately see how courses will transfer and apply towards a degree at a CAS institution.

Using CAS, you can

- **view course equivalency guides** to see how courses transfer from one institution to another.

- **view degree program requirements** to see what is expected to complete a particular degree program.
- **maintain a list of your courses** and grades for use in running a planning guide.
- **run an unofficial planning guide** (degree audit) to see how your courses may transfer and apply to a degree program.
- **view course descriptions** directly from CAS or from a CAS institution's Web site.

Note:

Information obtained through CAS should be considered unofficial and must be verified through the Records Department of the degree granting school.

Preparing for Transfer

If you are currently enrolled at Minnesota West Community and Technical College:

1. Discuss plans with the campus transfer specialist in your campus admissions office.
2. Review the information on the Minnesota Transfer Web site at <http://www.mntransfer.org/>
3. Call or visit intended transfer college.
4. Obtain the following materials and information to take with you: college catalog, transfer brochure, course syllabi, information on admissions criteria and on materials required for admission (e.g., portfolio, transcripts, test scores).
5. Review these materials and make an appointment to talk with an advisor/ counselor. You must bring a current college transcript for the admission counselor, transfer specialist and department advisor to review.

Understanding How Transfer Works

1. The receiving college or university decides which credits transfer and whether those credits meet its degree requirements. The accreditation of both the sending and the receiving institution can affect the transfer of the credits earned.
2. Institutions accept credits from courses and programs like those they offer. They look for similarity in course goals, content, and level. "Like" transfers to "like."
3. Not everything that transfers counts toward graduation. Baccalaureate degree programs usually count credits in three categories: general

education, major/minor courses and prerequisites, and electives.

4. If you change career goals or major, you might be able to complete all degree requirements within the usual number of graduation credits.
5. Apply for transfer admission as early as possible and prior to the deadline. Be sure to enclose application fees and other required documents.
6. If you have not heard from the intended college of transfer after one month, you should call or check on the application's status.
7. The transfer college will send you a written evaluation of which courses transfer and which do not. How courses specifically meet degree requirements may not be decided until you arrive for orientation or choose a major.
8. For questions about evaluation, you may call the college and speak with the transfer specialist. If not satisfied, you may appeal.

Your Rights as a Transfer Student

1. A clear, understandable statement of an institution's transfer policy.
2. A fair credit review and an explanation of why credits were or were not accepted.
3. A copy of the formal appeals process.
4. A review, on request, of your eligibility for financial aid or scholarships.

Transferring from Other Institutions

If you are planning to transfer from another institution to Minnesota West, you should follow the transfer application procedure. Minnesota West will evaluate the college transcripts you provide and post transfer credit to your Minnesota West transcript in accordance with MnSCU policy 3.21.

You can get an idea what will transfer to other institutions by visiting Course Applicability System (CAS) and viewing the dynamic Course Equivalency Tables. At this time, Minnesota West has Tables available from all Minnesota State Universities and Ridgewater College. Other Tables will be added as they are available.

For help with transfer, you may contact a college transfer specialist.

Programs of Study

Accountant, A.A.S.

Locations: Canby, Granite Falls, Jackson, Pipestone, Worthington and Online

Accountants examine, analyze and interpret accounting data for the purpose of giving advice and preparing financial statements. Accountants also post details of business transactions, such as receipts, disbursements and payroll.

ACCT 1102	College Accounting Concepts I	4
ACCT 1103	College Accounting Concepts II	4
ACCT 1110	Payroll Accounting	3
ACCT 1115	Computerized Acct Applications I	2
ACCT 1120	Spreadsheet Concepts and Applications	2
ACCT 1122	Database Concepts and Applications	2
ACCT 1125	Business Law and Ethics	3
ACCT 1135	Business Math	2
ADSA 1132	Calculators	1
ACCT 2100	Intermediate Accounting I	4
ACCT 2101	Intermediate Accounting II	2
ACCT 2105	Auditing	3
ACCT 2110	Income Tax I	4
ACCT 2115	Cost Accounting I	4
ACCT 2120	Fund/Nonprofit Accounting	3
ACCT 2125	Computerized Acct Applications II	2
ACCT 2130	Intermediate Accounting III	2
ACCT 2135	Internship	2
CSCI 1102	Introduction to Microcomputers	3
GSCL 1105	Job Seeking Skills	1
General Education Requirements		20
ENGL 1101	Composition I	3
ECON 2201	Principles of Macro Economics	3
NSCI 1100	Issues in the Environment	3

Humanities Electives -Art, Foreign Languages, Literature, Music, Philosophy, Theater, Western Civilization 3

General Education Electives 8
English, Biology, Chemistry, Math above 1000 level, Physics, Natural Science, Art, Foreign Language, Literature, Music, Philosophy, Theater, Western Civilization, Economics, Geography, History, Political Science, Psychology, and Sociology

Total Credits 71

Accountant, Diploma

Locations: Canby, Granite Falls, Jackson, Pipestone, Worthington and Online

Accountants examine, analyze and interpret accounting data for the purpose of giving advice and preparing financial statements. Accountants also post details of business transactions, such as receipts, disbursements and payroll.

ACCT 1102	College Accounting Concepts I	4
ACCT 1103	College Accounting Concepts II	4
ACCT 1110	Payroll Accounting	3

ACCT 1115	Computerized Accounting Applications I	2
ACCT 1120	Spreadsheet Concepts and Applications	2
ACCT 1122	Database Concepts and Applications	2
ACCT 1125	Business Law and Ethics	3
ACCT 1135	Business Math	2
ADSA 1132	Calculators	1
ACCT 2100	Intermediate Accounting I	4
ACCT 2101	Intermediate Accounting II	2
ACCT 2110	Income Tax I	4
ACCT 2105	Auditing	3
ACCT 2115	Cost Accounting I	4
ACCT 2120	Fund/Nonprofit Accounting	3
ACCT 2125	Computerized Accounting Applications II	2
ACCT 2130	Intermediate Accounting III	2
ACCT 2135	Internship Electives	2
ADSA 1122	Word Processing I	2
CSCI 1102	Introduction to Microcomputers	3
GSCL 1105	Job Seeking Skills	1

General Education or Related – 10 credits would include the following classes:

GSCM 1120	Technical Writing	2
GSSS 1100	Human Relations	2

or the following General Education classes:

English, Biology, Chemistry, Math above 1000 level, Physics, Natural Science, Art, Foreign Language, Literature, Music, Philosophy, Theater, Western Civilization, Economics, Geography, History, Political Science, Psychology, and Sociology

Total Credits 64

Accounting Clerk, Diploma

Locations: Canby, Granite Falls, Jackson, Pipestone, Worthington and Online

An accounting clerk performs any combination of routine calculating, posting, and verifying duties to obtain primary financial data for use in maintaining accounting records. They also posts details of business transactions, such as receipts, disbursements and payroll, reconcile bank statements, type vouchers, invoices, and other records.

ACCT 1102	College Accounting Concepts I	4
ACCT 1103	College Accounting Concepts II	4
ACCT 1110	Payroll Accounting	3
ACCT 1115	Computerized Acct. Applications I	2
ACCT 1120	Spreadsheet Concepts and Applications	2
ACCT 1122	Database Concepts & Applications	2
ACCT 1125	Business Law & Ethics	3
ACCT 1135	Business Math	2
ADSA 1122	Word Processing I	2
ADSA 1132	Calculators	1
CSCI 1102	Introduction to Microcomputers	3
GSCL 1105	Job Seeking Skills	1
Electives		3
Total Credits		32

Administrative Assistant, A.A.S.**Location: Canby, Granite Falls, Jackson, Pipestone and Worthington**

An Administrative Assistant's duties may include business communications, word processing and data entry, office machines operations and maintenance, office management, public relations, office accounting, filing systems and records management, and report preparation.

ADSA	1100	College Keyboarding I	3
ADSA	1122	Word Processing I	2
CSCI	1102	Introduction to Microcomputers	3
ADSA	1176	Business Communications	3
ADSA	1105	College Keyboarding II	3
ADSA	1123	Word Processing II	2
ADSA	1136	Desktop Publishing	2
GSSS	1100	Human Relations	2
ADSA	1190	Presentation Graphics	2
GSCL	1105	Job Seeking Skills	1
ADSA	1111	Office Management	3
ADSA	1130	Office Accounting Concepts	3
ACCT	1122	Database Concepts and Applications	2
ACCT	1120	Spreadsheet Concepts and Applications	2
ADSA	1145	Supervisory Management or	3
BUS	2221	Principles of Management	3
ADSA	1126	Advanced Office Applications	2
General Education Electives including:			20
ENGL	1101	Composition I	3
NSCI	1101	Issues in the Environment	3
PSYC	1101	Introduction to Psychology or	4
SOC	1101	Introduction to Sociology	3
SPCH	1101	Speech	3
Humanities Electives from the following:			3
Art, Foreign Language, Literature, Music, Philosophy, Theater, Western Civilization			
General Education Electives from:			4 or 5
English, Biology, Chemistry, Math above 1000 level, Physics, Natural Science, Art, Foreign Language, Literature, Music, Philosophy, Theater, Western Civilization, Economics, Geography, History, Political Science, Psychology, and Sociology			
Electives from the suggested list:			5 or 6
ACCT	1102	College Accounting Concepts I	4
ACCT	1103	College Accounting Concepts II	4
ACCT	1110	Payroll Accounting	3
ACCT	1125	Business Law and Ethics	3
ACCT	1135	Business Math	3
ADSM	1100	Medical Terminology I	2
ADSM	1110	Anatomy & Phy/Disease Cond I	2
ADSM	1115	Anatomy & Phy/Disease Cond II	2
CST	1100	Network Installation/Administration	4
CST	1111	File Structures	3
CST	1120	Operating Systems I	3
CST	1130	Operating Systems II	3
CST	1190	Introduction to Networking	3
CST	2110	PC Maintenance and Repair I	3
Total Credits			64

Administrative Assistant, Diploma**Locations: Canby, Granite Falls, Jackson, Pipestone and Worthington**

An Administrative Assistant's duties may include business communications, word processing and data entry, office machines operations and maintenance, office management, public relations, secretarial accounting, filing systems and records management, and report preparation.

ADSA	1100	College Keyboarding I	3
ADSA	1111	Office Management	3
ADSA	1122	Word Processing I	2
ADSA	1130	Office Accounting Concepts	3
ADSA	1176	Business Communications	3
CSCI	1102	Introduction to Microcomputers	3
GSCL	1105	Job Seeking Skills	1
ACCT	1120	Spreadsheet Concepts and Applications	2
ACCT	1122	Database Concepts and Applications	2
ADSA	1105	College Keyboarding II	3
ADSA	1123	Word Processing II	2
ADSA	1126	Advanced Office Applications	2
ADSA	1190	Presentation Graphics	2
GSSS	1100	Human Relations	2
Electives (see below)			2
Total Credits			35
Suggested Electives:			
ACCT	1110	Payroll Accounting	3
ACCT	1122	Database Concepts and Application	2
ACCT	1125	Business Law and Ethics	3
ACCT	1135	Business Math	3
ADSM	1100	Medical Terminology I	2
ADSM	1110	Anatomy and Physiology/ Disease Conditions I	2
CST	1100	Network Installation/Admin.	4
CST	1111	File Structures	3
CST	1120	Operating Systems I	3
CST	1190	Introduction to Networking	3
CST	2110	PC Maintenance and Repair	3

Receptionist, Certificate**Locations: Canby, Granite Falls, Jackson, Pipestone and Worthington**

Receptionists perform a wide variety of office tasks such as: keyboarding or typing business correspondences, reports, business forms, and other documents using word processing equipment. They also greet customers and other visitors, determine their needs and refer callers to the person who can help them. When not busy with callers, they may type, file, operate a switchboard, open and sort mail, schedule appointments, prepare travel vouchers and do simple bookkeeping.

ADSA	1100	College Keyboarding I	3
ADSA	1111	Office Management	3
ADSA	1176	Business Communications	3
ADSA	1122	Word Processing I	2
GSCL	1105	Job Seeking Skills	1
ADSA	1105	College Keyboarding II	3
GSSS	1100	Human Relations	2
CSCI	1102	Introduction to Microcomputers	3

ADSA	1123	Word Processing II	2
Elective from the following suggested:			1
ACCT	1120	Spreadsheet Concepts and Applic.	2
ACCT	1122	Database Concepts & Applic.	2
ACCT	1125	Business Law and Ethics	3
ADSA	1116	Machine Transcription	2
ADSA	1126	Advanced Office Applications	2
ADSA	1130	Office Accounting Concepts	3
ADSA	1190	Presentation Graphics	2
ADSM	1100	Medical Terminology I	2
ADSM	1110	Anatomy & Phys/Disease Conditions I	2
CST	1111	File Structures	3
CST	1120	Operating systems I	3
CST	1190	Intro to Networking	3
CST	2110	PC Maintenance & Repair I	3
Total Credits			23

Agriculture, A.S.

Location: Worthington

Students selecting this option can transfer to upper division institutions with majors in several broad agriculture areas. Students are encouraged to review the requirements of the college to which they intend to transfer and discuss their plans with a counselor or the instructors in that area. The following specific requirements are designed to help students attain the basic transfer requirements for most four-year institutions offering agriculture.

1. Successful completion of a minimum of 64 credits, 20 of which must be earned at Minnesota West Community & Technical College.
2. A grade point average of 2.00 ("C") or better.
3. Meet the minimum of 30 credits of general education as required by the A.S. degree.
4. Fulfill a minimum of 30 credits of core technical courses unique to the agriculture program in the transfer institution, including a minimum of 18 credits in agriculture.
5. Physical Education/Health-a minimum of one course.
6. Computer Science 1102 Introduction to Microcomputers, 3 credits, required.

Agriculture Business, A.S.

Location: Worthington

This two-year program is designed to prepare students for employment in agri-business or for continuing their education at a four-year institution. Graduates of this program may find job opportunities in sales, services, and management positions in agriculture related firms and industries. Students who plan to transfer are encouraged to review the requirements of the transfer institutions and plan their programs accordingly. Students in this program will receive the A.S. degree upon successful completion of the following requirements and suggested courses:

1. Successful completion of a minimum of 64 credits, 20 of which must be earned at Minnesota West Community & Technical College.
2. A grade point average of 2.00 ("C") or better.
3. Meet the minimum of 30 credits of general education as required by the A.S. degree.
4. Physical Education/Health - a minimum of one course.
5. CSCI 1102 Introduction to Microcomputers, 3 credits required.
6. Fulfill a minimum of 30 credits of core technical courses in the areas of business and agriculture from the following:

Business Courses - a minimum of 12 credits including:

BUS	1101	Introduction to Business	4
BUS	2201	Principles of Accounting I	4
AGRI	2251	Principles of Farm & Ranch Mgmt	4

Agriculture Courses - a minimum of 18 credits including an Agri-business internship of a least 2 credits. Agriculture credits may be chosen from the following:

AGRI	1101	Intro to Animal Science	3
AGRI	1102	Principles of Agronomy	3
AGRI	1103	Introduction to Soil Science	3
AGRI	1110	Introduction to Horticulture	3
AGRI	1121	Dairy Technician	2
AGRI	1125	Custom Application	3
AGRI	1151	Farm Records & Business Analysis	3
AGRI	1152	Ag Marketing & Pricing	3
AGRI	1153	Ag Finance	3
AGRI	2201	Principles of Animal Nutrition	3
AGRI	2202	Weed Control	3
AGRI	2203	Soil Fertility & Fertilizers	3
AGRI	2204	Intro to GPS/GIS	3
AGRI	2212	Corn & Soybean Production	3
AGRI	2214	Machinery Principles & Mgt.	3
AGRI	2216	Introduction to Meat Science	3
AGRI	2235	Special Topics in Agriculture	1-3
AGRI	2251	Principles of Farm & Ranch Mgt.	4
AGRI	2299	AGRI-Business Internship	2-8

Agriculture Business Management, A.A.S.

Location: Worthington

This two year program is designed to prepare students for employment in agribusiness. Graduates may find employment opportunities in sales, services, and management positions in the Agriculture business sector.

General Education Requirement			20
ENGL	1101	Composition I	3
ECON	2201	Macro Economics	3
BUS	1101	Introduction to Business	4
BUS	2201	Principles of Accounting I	4
BUS	2221	Business Management	3
BUS	2242	Business Communication	3
or			
ENGL	2276	Technical Writing	3

CSCI	1102	Introduction to Microcomputers	3
AGRI	2299	Internship	2-8
		Agriculture Electives	30
		Total Credits	64

Agriculture Business Marketing, A.A.S.

Location: Worthington

Marketing A.A.S. students selecting this option are looking to seek employment upon completion of this degree. This degree will provide the student with the skills necessary to work in the Agriculture business area. The areas of possible employment include, but are not limited to Ag Sales and Services, with skills necessary for seeking entry management positions.

General Education Requirement			20
ENGL	1101	Composition I	3
ECON	2201	Macro Economics	3
BUS	1101	Introduction to Business	4
BUS	2230	Principles of Marketing	3
BUS	2242	Business Communications	3
		or	
ENGL	2276	Technical Writing	3
CSCI	1102	Introduction to Microcomputers	3
AGRI	2299	Internship	2-8
		Agriculture Electives	30
		Total Credits	64

Agriculture - Plant Science GIS/GPS, A.S.

Location: Worthington

The Plant Science GIS/GPS Associate in Science degree is designed to provide the students with several options. One option is a career in the emerging field of Precision Agriculture. Examples of employment would include soil gridding, nutrient management planning and variable rate application. The second option allows the student to continue onto a Bachelor's degree in this field with an emphasis in Agronomy.

AGRI	1102	Principles of Agronomy	3
AGRI	1103	Introduction to Soil Science	3
AGRI	2202	Weed Control	3
AGRI	2203	Soil Fertility & Fertilizers	3
AGRI	2204	GIS/GPS	3
AGRI	2212	Corn & Soybean Production	3
BIOL	1110	Principles of Biology	4
BIOL	2230	Plant Biology	4
ENGL	1101	Composition I	3
CSCI	1102	Introduction to Microcomputers	3
CHEM	1101	General Inorganic I	5
ECON	2201	Macroeconomics	3
GEOG	1100	Introduction to Geography	3
MATH	1111	College Algebra	3
PHIL	1101	Introduction to Philosophy	3
PHIL	2201	Introduction to Ethical Theory	1
PHIL	2202	General Applied Ethics	1
PHIL	2203	Ethics for Small Businesses	1
PHIL	2204	Ethics for Corporations	1
SPCH	1101	Introduction to Speech	3
		Health/Phy Ed	1
		Electives	7
		Total Credits	64

Agriculture - Precision Agriculture Application Technician, Certificate

Location: Worthington

AGRI	1102	Principles of Agronomy	3
AGRI	1103	Introduction to Soil Science	3
AGRI	1125	Custom Application	3
AGRI	2202	Weed Control	3
AGRI	2204	GIS/GPS	3
AGRI	2212	Corn & Soybean Production	3
AGRI	2297	Ag Production Management Intern	4
AUTO	1195	Commercial Driver's License.	1
HLTH	1115	First Aid	1
		Electives	2
		Total Credits	26

Agriculture - Precision Agriculture, Diploma

Location: Worthington

This diploma allows the student to immediately enter the field of Precision Agriculture. The diploma track has an emphasis tied to production Agriculture which allows the student to support this industry in the job market or bring these modern skills back to the farm operation. Jobs may include, but are not limited to soils technician, and agronomy technician.

AGRI	1102	Principles of Agronomy	3
AGRI	1103	Introduction to Soil Science	3
AGRI	1125	Custom Application	3
AGRI	1151	Farm Records	3
AGRI	1152	Ag Marketing & Pricing	3
AGRI	1153	Ag Finance	3
AGRI	2202	Weed Control	3
AGRI	2203	Soil Fertility & Fertilizers	3
AGRI	2204	GIS/GPS	3
AGRI	2212	Corn & Soybean Production	3
AGRI	2251	Farm & Ranch Management	4
AGRI	2235	Special Topics in Agriculture	1-3
AGRI	2297	Ag Production Management Intern	4
AUTO	1195	Commercial Driver's License	2
CSCI	1102	Introduction to Microcomputers	3
GEOG	1101	Physical Geography	4
		or	
PSCI	2210	Environmental Politics	3
HLTH	1115	First Aid	1
NSCI	1100	Issues in the Environment	3
		or	
PHIL	2201	Introduction to Ethical Theory	1
PHIL	2202	General Applied Ethics	1
PHIL	2205	Business Ethics	1
SPCH	1101	Introduction to Speech	3
		Agricultural Electives	4-7
		Total Credits	64

Agriculture Production, A.A.S.

Location: Worthington

This A.A.S. degree in Agriculture Production is designed for the student who's career is in production Agriculture. This degree has two options, one is an Agronomy emphasis and the other option has emphasis in Animal Science. The student will focus on course and lab work closely aligned to prepare the student to enter this field. This program is composed of many courses in Agriculture leading to a graduate with extensive preparation in Production Agriculture.

ENGL	1101	Composition I	3
ECON	2101	Principles of Macro Economics	3
NSCI	1100	Issues in the Environment	3
SPCH	1101	Introduction to Speech	3
		Humanities Elective	3
		General Education Electives	5

Ag production core requirements with emphasis:

Agronomy or Animal Science

AGRI	1151	Farm Records	3
AGRI	1152	Marketing & Pricing	3
AGRI	2251	Farm & Ranch Management	4
AGRI	2297	Internship	2-8

Students should choose (15 credits) from either Agronomy or Animal Science listed below:

Agronomy Emphasis

AGRI	1102	Principles of Agronomy	3
AGRI	1103	Introduction to Soil Science	3
AGRI	2202	Weed Control	3
AGRI	2203	Soil Fertility & Fertilizers	3
AGRI	2204	GIS/GPS	3
AGRI	2212	Corn & Soybean Production	3
AGRI	2214	Machinery Prin. & Management	3
		Ag Mechanics Electives	3

Animal Science Emphasis

AGRI	1101	Livestock Production	3
AGRI	1102	Principles of Agronomy	3
AGRI	1103	Introduction to Soil Science	3
AGRI	1121	Dairy Technician	2
AGRI	2201	Principles of Animal Nutrition	3
AGRI	2216	Introduction to Meat Science	3
		Total Credits	64

Agriculture Production Management, A.S.

Location: Worthington

This two-year program is designed to prepare students for employment in production agriculture as farm operators or in fields of employment related to farm production or for continuing their education at a four-year institution. Students who plan to transfer are encouraged to review the requirements of the transfer institution and plan their programs accordingly. Students in this program will receive the A.S. degree upon successful completion of the following requirements and suggested courses.

1. Successful completion of a minimum of 64 credits, 20 of which must be earned at Minnesota West Community & Technical College.
2. A grade point average of 2.00 ("C") or better.
3. Meet the minimum of 30 credits of general education as required by the A.S. degree.
4. Fulfill a minimum of 30 credits of core technical courses in Agriculture. An agriculture production management internship of at least 2 credits is required.

AGRI	1101	Intro to Animal Science	3
AGRI	1102	Principles of Agronomy	3
AGRI	1103	Introduction to Soil Science	3
AGRI	1110	Introduction to Horticulture	3

AGRI	1121	Dairy Technician	2
AGRI	1125	Custom Application	3
AGRI	1151	Farm Records & Bus. Analysis	3
AGRI	1152	Ag Marketing & Pricing	3
AGRI	1153	Ag Finance	3
AGRI	2201	Principles of Animal Nutrition	3
AGRI	2202	Weed Control	3
AGRI	2203	Soil Fertility & Fertilizers	3
AGRI	2204	GPS/GIS	3
AGRI	2212	Corn & Soybean Production	3
AGRI	2214	Machinery Prin. & Management	3
AGRI	2216	Introduction to Meat Science	3
AGRI	2235	Special Topics in Agriculture	1-3
AGRI	2251	Principles of Farm & Ranch Mgt.	4
AGRI	2297	Ag Production Mgt. Intern	2-8

4. Physical Education/Health - a minimum of one course.

5. CSCI 1102 Introduction to Microcomputers, 3 credits required.

Art, A.A.

Location: Worthington

The following is a suggested Minnesota Transfer Curriculum (MTC) program for students interested in obtaining a four-year degree in art. Students interested in this degree should choose the Liberal Arts major on the application.

ENGL	1101	Composition I	3
SPCH	1101	Introduction to Speech	3
		Choose one of the following:	3
ENGL	1102	Composition II	3
ENGL	2243	Composition: Creative Writing	3
ENGL	2276	Composition: Technical Writing	3

		Social Science Electives**	3-6
		Biology Electives	3-4
		Physical Education Activity	1

ART	1101	Beginning Drawing	3
ART	1115	Beginning Painting	3
ART	2240	Art History	3
ART	2245	Art History II	3
HLTH	1101	Personal Wellness	3

Choose one of the following: 3-4

NSCI	1100	Issues in the Environment	3
PSCI	2210	Environmental Politics	3
GEOG	1101	**Intro to Physical Geography	4

		Chemistry or Physics Electives	3-5
		Math Electives	3

MUSC	1105	Enjoying Music	3
HIST	1111	Western Civilization I	3
HIST	1112	Western Civilization II	3
ART	1124	Introduction to Ceramics	3
ART	2215	*Intermediate Ceramics	3
ART	1103	*Display and Exhibition	1
PSYC	1101	Introduction to Psychology	4
CSCI	1102	Introduction to Microcomputers	3

Total Credits 64

* Consult counselor/advisor

**If either PSCI 2210 or GEOG 1101 is taken to meet Areas 5 and 10, only three credits in SOC SCI is required.

Automotive Technology, A.A.S.

Locations: Canby and Jackson

The automotive technician inspects, tests and diagnoses vehicles to determine repairs required. Technicians start engines and listen for sound indicative of malfunctions, drive vehicles noting performance of parts such as clutch, gears and brakes, analyze motor for cylinder compression, fuel consumption, wheel alignment, and steering using a variety of testing devices. The automotive technician plans work procedures using charts, technical manuals and experience. A variety of lifting devices are used to gain access to the underside of vehicles.

Disassembling units, such as engines, transmissions and differentials to inspect parts for wear is also done by a technician. Wear will be measured using micrometers, calipers and thickness gages. They may repair and replace parts. General auto service of vehicles may also be a part of the automotive technicians duties.

AUTO 1100	General Auto Service	3
AUTO 1111	Electrical	4
AUTO 1120	Air Conditioning	2
AUTO 1121	Adv. Heating & Air Conditioning	2
AUTO 1126	Steering and Alignment	4
AUTO 1131	Brakes	4
AUTO 1136	Engine Technology & Lab	5
AUTO 1145	Engine Performance I	2
AUTO 2106	Automatic Transmissions	5
AUTO 2112	Manual Drive Train & Axles	5
AUTO 2121	Engine Performance II	5
AUTO 2122	Advance Engine Performance III	5
AUTO 2145	Ford Computer Controls & Fuel Injection	4
AUTO 2190	Summer Internship (after 2nd Semester)	4

General Education - 18 credits as follows:

ENGL 1101- Composition I, 3 credits
NSCI 110-Issues in environment, 3 credits
PSYC 1101-Intro to Psychology, 4 credits
Humanities Electives, 3 credits: Art, Foreign Language, Literature, Music, Philosophy, Theatre, Western Civilization

General Education Electives - 5 credits as follows:

English, Biology, Chemistry, Math above 1000 level, Physics, Natural Science, Art, Foreign Language, Literature, Music, Philosophy, Theater, Western Civilization, Economics, Geography, History, Political Science, Psychology, and Sociology

Total Credits 72

Automotive Technician, Diploma

Locations: Canby and Jackson

The automotive technician inspects, tests and diagnoses vehicles to determine repairs required. Technicians start engines and listen for sound indicative of malfunctions, drive vehicles noting performance of parts such as clutch, gears and brakes, analyze motor for cylinder compression, fuel consumption, wheel alignment, and steering using a variety of testing devices. The automotive technician plans work procedures using charts, technical manuals and experience. A variety of lifting devices are used to gain access to the underside of vehicles.

Disassembling units, such as engines, transmissions and differentials to inspect parts for wear is also done by a technician. Wear will be measured using micrometers, calipers and thickness gages. They may repair and replace parts. General auto service of vehicles may also be a part of the automotive technicians duties.

AUTO 1100	General Auto Service	3
AUTO 1111	Electrical	4
AUTO 1120	Air Conditioning	2
AUTO 1121	Adv. Heating & Air Conditioning	2
AUTO 1145	Engine Performance	2
AUTO 1126	Steering/Suspension/Alignment	4
AUTO 1131	Brakes	4
AUTO 1136	Engine Technology & Lab	5
AUTO 2190	Summer Internship (after 2nd semester)	4
AUTO 2106	Automatic Transmissions	5
AUTO 2112	Manual Drive Train & Axles	5
AUTO 2121	Engine Performance II	5
AUTO 2122	Advance Engine Performance III	5
AUTO 2145	Body Computer Controlled Electrical Systems	4

General Education or Related 10

credits would include the following classes:
GSSS 1100 - Human Relations, GSCL 1105 - Job Seeking Skills, GSCM 1120

Technical Writing or the following General

Education classes:

English, Biology, Chemistry, Math above 1000 level, Physics, Natural Science, Art, Foreign Language, Literature, Music, Philosophy, Theater, Western Civilization, Economics, Geography, History, Political Science, Psychology, and Sociology

Total Credits 64

Automotive Advanced Engine Performance & Electrical, Certificate

Locations: Canby and Jackson

AUTO 2121	Engine Performance II	5
AUTO 2122	Advance Engine Performance III	5
AUTO 2145	Body Computer Controlled Electrical Systems	4
AUTO 2190	Summer Internship (after 2nd semester)	4
Total Credits		18

Automotive Drivetrain Systems, Certificate

Locations: Canby and Jackson

AUTO 1126	Steering and Alignment	4
AUTO 1131	Brakes	4
AUTO 2106	Automatic Transmissions	5
AUTO 2112	Manual Drive Train Axles	5
Total Credits		18

Automotive Engine Repair & Electrical, Certificate

Locations: Canby and Jackson

AUTO 1100	Introduction to Transportation	3
AUTO 1111	Electrical	4
AUTO 1120	Air Conditioning	2

AUTO 1121	Adv. Heating & Air Conditioning	2
AUTO 1145	Engine Performance	2
AUTO 1136	Engine Technology & Lab	5
	Total Credits	18

Aviation - PreAirway Science, A.S.

Location: Worthington

The pre-airway science curriculum prepares students to transfer into airway science majors at transfer institutions. Students are awarded an A.S. degree in Pre-Airway Science upon successful completion of the following requirements:

- Successful completion of 64 semester credits of which at least 20 must be earned at Minnesota West Community & Technical College.
- A Grade Point Average of 2.0 ("C") or better.
- Meet the general education requirements of the A.S. Degree.
 - Communications
 - ENGL 1101 and 2276 6 cr.
 - SPCH 1101 3 cr.
 - Math/Science
 - MATH 1105, 1111 and 1113 11 cr.
 - PHYS 1201 and 1202 8 cr.
 - CHEM 1101 4 cr.
 - Behavioral/Social Science* - a minimum of 3 credits from the following areas:
 - Economics
 - Political Science
 - Geography
 - Psychology
 - History
 - Sociology
 - Humanities** - a minimum of 3 credits from the following:
 - Art
 - Philosophy
 - Literature
 - Theater
 - Humanities
 - Western Civilization
 - Music
- Physical Education/Health
 - PHED activity required 1 cr.
- AVIA 1100 Private Pilot Ground School 4 cr.
- Computer Science
 - CSCI 1102 Intro to Microcomputer 3
 - CSCI 2240 Fund. of Programming I 4
- Geography
 - GEOG 2140 - Meteorology 3

Electives sufficient to total 64 credits

(Electives to be taken from the General Education categories)

***Students should take behavioral/social science classes based on the institution to which they intend to transfer. Some institutions may require more than 4 credits in this category. Some courses recommended, depending on the transfer institution are:**

ECON 2201	Principles of Macroeconomics
ECON 2202	Principles of Microeconomics

History courses - American History and Western Civilization

PSCI 1101	Intro to Political Science
PSYC 1101	Intro to Psychology
SOC 1101	Intro to Sociology

****Students should take humanities classes based on the institution to which they intend to transfer. Some institutions may require more than 3 credits in this category.**

Pre-Airway Science students should consult with a Minnesota West counselor concerning the specific requirements at the school to which they plan on transferring.

Biology - Fish - Wildlife, A.A.

Location: Worthington

The program listed below is only a suggested guide, and the specific courses required vary among the four year colleges. The student planning a degree in these areas should contact the Biology Department and the counselors at Minnesota West-Worthington campus for assistance with curriculum planning. This degree meets the Associate in Arts and MTC requirements and will take five or six semesters to complete. Students desiring the Associate in Science degree may be able to complete the program in four semesters. Students interested in this degree should choose the Liberal Arts major on the application.

ENGL 1101	Composition I	3
	Choose two of the following:	7-9
MATH 1111	College Algebra	3
MATH 1113	Pre-Calculus	4
MATH 1121	*Calculus I	4

CHEM 1101	General Inorganic Chemistry I	4
CHEM 1102	General Inorganic Chemistry II	4
BIOL 1110	Principles of Biology	4
HLTH 1101	Personal Wellness	3
SPCH 1101	Introduction to Speech	3

	Choose one of the following:	3
ENGL 1102	Composition II	3
ENGL 2276	Composition: Technical Writing	3
ENGL 2243	Composition: Creative Writing	3
PHYS 1201	Fundamentals of Physics I	4
PHYS 1202	Fundamentals of Physics II	4

	Physical Education Activity	1
BIOL 2220	Animal Biology	4
BIOL 2230	Plant Biology	4
BIOL 2270	*Microbiology	4
	Social Science Electives**	6-9

	Choose one or two:	
CHEM 2201	Organic Chemistry I	5
CHEM 2202	Organic Chemistry II	5

	Choose one of the following:	
NSCI 1100	Issues in the Environment	3
PSCI 2210	Environmental Politics	3
GEOG 1101	**Intro to Physical Geography	4

CSCI 1102	Introduction to Microcomputers	3
	Humanities Electives	9
	Total Credits	64

*Depends on high school preparation and transfer institution.

**If either PSCI 2210 or GEOG 1101 is taken to meet Areas 5 and 10, only six credits in SOC SCI is required. Some institutions require ECON 2201.

Biotechnology Lab Technician, A.A.S.

Location: Worthington

Biotechnology is the application of biological organisms, systems, and/or processes to learn about the science of life and the improvement of the value of materials and organisms such as pharmaceuticals, crops, and livestock. Biotechnology is a relatively new and fast-developing field that integrates knowledge from several traditional sciences: biochemistry, chemistry, microbiology, and chemical engineering. Graduates may work in labs for companies in the areas of pharmaceuticals, food processing, molecular biology, agricultural research, and product analysis.

CSCI	1102	Introduction to Microcomputers	3
BIOL	1110	Principles of Biology	4
CHEM	1101	General Inorganic Chemistry I	4
MATH	1105	Statistics	4
ENGL	1101	Composition I	3
BIOL	2270	Microbiology	4
BIOT	1101	Introduction to Biotechnology	3
PHYS	1100	Survey of Physics	3
		Recommended Electives	3
SPCH	1101	Introduction to Speech	3
BIOT	2205	Molecular and Cellular Biology	3
BIOT	2210	Biotechnology Methods I	4
CHEM		Organic and Biological Chemistry	3
		Recommended Electives	3
ENGL	2276	Technical Writing	3
BIOT	2220	Biotechnology Methods II	4
BIOT		Analytical and Investigative Lab Techniques	4
BIOT		Internship	2
*		Recommended Electives	4
		Total Credits	64

*** For recommended electives, choose from:**

Genetics, Animal Science, Agronomy, Animal Biology, Plant Biology, and College Algebra

Business, A.S.

Location: Worthington and Online

This is a pre-professional degree made up of a minimum of 30 transfer-level general education credits and 30 occupational or pre-professional credits. The program is designed to transfer to a B.S. program in business, marketing, management, or accounting. To complete the degree students must fulfill the following requirements:

1. Successful completion of a minimum of 64 credits of which at least 20 must be earned at Minnesota West Community & Technical College.
2. A grade point average of 2.0 ("C") or better.
3. Students should select general education credits that will allow them to substantially complete 8 or 10 of the areas listed under the A.A. Degree, Minnesota Transfer curriculum.

Recommended Area:

- Area 1: Communications
- Area 2: Critical Thinking
- Area 3: Natural Science
- Area 4: Mathematical/Logical Reasoning
MATH 1111 College Algebra or MATH 1105 Intro to Probability and Statistics
- Area 5: History and the Social and Behavioral Sciences - ECON 2201
Macroeconomics and either Psychology or Sociology
- Area 6: The Humanities and Fine Arts
One humanities or natural science course
- Area 7: Human Diversity
- Area 8: Global Perspective
- Area 9: Ethical and Civic Responsibility
- Area 10: People and the Environment.

Some courses should be selected to meet two areas. Students will be required to take general education courses in at least two areas (natural science and humanities) at the receiving institution.

30 Credits of technical courses (see below)

BUS	1101	Introduction to Business	4
BUS	2201	Principles of Accounting I	4
BUS	2202	Principles of Accounting II	4
BUS	2221	Principles of Management	3
BUS	2230	Principles of Marketing	3
BUS	2242	Business Communications	3

Electives - Choose 3 of the following

BUS	1104	Business Mathematics	3
BUS	2200	Intro to Management Info Sys	3
BUS	2232	Professional Selling	3
BUS	2241	Business Law	3
BUS	2275	Human Resource Management	3
ECON	2202	Principles of Microeconomics	3

Physical Education/Health- a minimum of one course

CSCI 1102 Introduction to Microcomputers, 3 credits required

Business Administration, A.A.

Location: Worthington

Upon completion of the program listed below, the student may transfer to an upper division school of business and complete his/her requirements for the Bachelor of Arts or Bachelor of Science degree in Business. Students may also choose to delay the completion of their formal education and seek employment knowing that when they decide to return to school the credits they have earned at Minnesota West-Worthington will allow them to enter an upper division program on either a full or part-time basis. This program meets the Associate in Arts and MTC requirements.

ENGL	1101	Composition I	3
		Choose one of the following:	
ENGL	1102	Composition II	3
ENGL	2276	Composition: Technical Writing	3
ENGL	2243	Composition: Creative Writing	3
		Biology	3-4

MATH	1111	College Algebra or Introduction to Speech Chemistry or Physics	3 3 3-4
CSCI	1102	Introduction to Microcomputers	3
PSYC	1101	Introduction to Psychology	4
		Physical Education Activity	1
BUS	1101	Introduction to Business	4
BUS	2201	Principles of Accounting I	4
BUS	2202	Principles of Accounting II	4
ECON	2201	Principles of Macroeconomics	3
ECON	2202	Principles of Microeconomics	3
MATH	1105	Introduction to Probability and Statistics	4
		Social Science Elective***	3
		Humanities Electives	9

Choose one of the following:

NSCI	1100	Issues in the Environment	3
PSCI	2210	Environmental Politics	3
GEOG	1101**	Intro to Physical Geography	4
HLTH	1101	Personal Wellness	3
		Total Credits	64

Note: See advisor/counselor for areas MTC 8 and 9

**Depends on transfer institution

*** If either PSCI 2210 or GEOG 1101 is taken to meet Areas 5 and 10, the SOC SCI requirement is fulfilled.

Business Education, A.A.

Location: Worthington

This curriculum is designed for students who plan to teach Business Education courses in high school. The general education courses will vary depending upon the students interest and the requirements of the college or university to which the student intends to transfer. The student may take a somewhat reduced load from what is listed below. This program meets the Associate in Arts degree and MTC requirements. It is based on the Board of Teaching approved major at Winona State University. All students who plan to enroll in education programs MUST complete the PPST (Pre-Professional Skills Test) before enrolling in junior level education courses. The PPST bulletin is available in the Student Services Office.

ENGL	1101	Composition I	3
MATH	1111	College Algebra or Pre-Calculus	3 4
MATH	1113*	Biology	3-4
HLTH	1101	Personal Wellness	3
		Physical Education Activity	1
CSCI	1102	Introduction to Microcomputers	3
CSCI	1100	**Microcomputer Keyboarding	2
PSYC	1101	Introduction to Psychology	4
		Chemistry or Physics	3-4

Choose one of the following:

ENGL	1102	Composition II	3
ENGL	2276	Composition: Technical Writing	3
ENGL	2243	Composition: Creative Writing	3

Choose one of the following:

BUS	2201	Principles of Accounting I	4
BUS	2202	Principles of Accounting II	4
ECON	2201	Principles of Macroeconomics	3
ECON	2202	Principles of Microeconomics	3
CSCI	1131	Word Processing I	2

Choose one of the following:

NSCI	1100	Issues in the Environment	3
PSCI	2210	Environmental Politics	3
GEOG	1101**	Intro to Physical Geography	4
BUS	1101	Introduction to Business	4
MATH	1105*	Introduction to Probability and Statistics	4
SPCH	1101	Introduction to Speech	3
		Social Science Elective***	3
		Humanities Electives	9
		Total Credits	64

* Placement depends on the students starting proficiency.

** Depends on transfer institution.

*** If either PSCI 2210 or GEOG 1101 is taken to meet areas 5 and 10, the SOC SCI requirement is completed.

Business Management, A.A.S.

Location: Worthington

This degree is designed for students who plan to enter the job market after completion of the program. It prepares students for entry-level positions in offices, private industry, the civil service, etc., and a variety of business fields. The following are the requirements for attaining a degree in this area:

General education requirements - sufficient to meet the minimum general education requirements of the general A.A.S. degree. Career courses - to include the following:

NOTE: Keyboarding proficiency or a course in keyboarding is strongly recommended.

BUS	1101	Introduction to Business	4
*BUS	1104	Business Math	3
BUS	2201	Principles of Accounting I	4
BUS	2202	Principles of Accounting II	4
BUS	2221	Principles of Management	3
BUS	2230	Principles of Marketing	3
BUS	2242	Business Communications	3
CSCI	1102	Introduction to Microcomputers	3
CSCI	2100	Advance Microcomputer Applic	4

* Course may be waived by petition

Business Management, A.S.

Locations: Worthington and Online

This degree is designed for students planning to enter the job market after completion of the program or to continue their education in four-year colleges. It prepares students for entry-level positions in offices, private industry, civil service, and a variety of business fields. The following are the requirements for attaining a degree in this area. (A course in keyboarding and/or keyboarding proficiency is strongly recommended). To complete the degree students must fulfill the following requirements:

1. Successful completion of a minimum of 64 credits of which at least 20 must be earned at Minnesota West Community & Technical College.
2. A grade point average of 2.0 ("C") or better.

3. Meet the minimum of 30 credits of general education as required by the A.S. degree.

Business Management - 30 credits (see below table)

BUS	1101	Introduction to Business	4
**BUS	1104	Business Mathematics	3
BUS	2201	Principles of Accounting I	4
BUS	2202	Principles of Accounting II	4
*BUS	2221	Principles of Management	3
*BUS	2230	Principles of Marketing	3
BUS	2242	Business Communications	3

4. Physical Education/Health - a minimum of one course
5. CSCI1102 Introduction to Microcomputers, 3 credits required
6. Choose a minimum of six (6) electives credits from the following:

BUS	2200	Intro to Mgmt. Info. Sys.	3
BUS	2232	Professional Selling	3
BUS	2233	Advertising	3
BUS	2241	Business Law	3
BUS	2275	Human Resource Mgmt.	3
BUS	2297	Cooperative Education – Bus	2-4
ECON	2201	Principles of Macroeconomics	3
ECON	2202	Principles of Microeconomics	3

*Transfer with validation by the receiving institutions:
 Methods of validation:
 Institutions have the option of course validation or Students can "test out" or "deferred credit" "test out" by exam at the receiving institution "deferred credit" by successful completion of one specified advanced course in the program.

The total number of program credits required shall not exceed that for students who entered the institution as first year students.

**Course may be waived by petition.

Business Management Computer Emphasis, A.S.

Location: Worthington

This Business Management Computer Science Emphasis Program is a cooperative effort between the Business Department and the Computer Science Department. The program is designed to prepare students academically with an interdisciplinary background in business decision-making and computer science. Students earn an A.S. Degree in Business Management Computer Emphasis upon successful completion of the following requirements:

1. Successful completion of a minimum of 64 credits of which at least 20 must be earned at Minnesota West Community & Technical College. A grade point average of 2.0 ("C") or better.
2. Meet the minimum of 30 credits of general education as required of the A.S. degree. Business Management Computer Emphasis - a minimum of 30 credits including: (See below)

Required (Core) Courses

BUS	1101	Introduction to Business	4
*BUS	1104	Business Mathematics	3
BUS	2201	Principles of Accounting I	4
BUS	2202	Principles of Accounting II	4
BUS	2221	Principles of Management	3
CSCI	2100	Advance Micro Applications	4
CSCI	2130	Data Base Management Systems	3
CSCI	2140	Elec. Spreadsheets/Graphics	3

Choose a minimum of 2 credits of electives from the following:

BUS	2200	Intro to Management Info Systems	3
BUS	2230	Principles of Marketing	3
BUS	2232	Professional Selling	3
BUS	2233	Advertising	3
BUS	2241	Business Law	3
BUS	2275	Human Resource Management	3
CSCI	2120	Publishing Web Pages	1
CSCI	2200	Visual Basic Programming	4
CSCI	2215	Web Programming I	3
CSCI	2240	Fundamentals of Programming I	4
CSCI	2250	Java Programming	4
CSCI	2290	Tech. Capstone Seminar	1

3. Physical Education/Health - a minimum of one course.
4. CSCI1102 Introduction to Microcomputers, 3 credits required.

NOTE: Students who did not take two years of a world language in high school may need one year of college credit in a language to meet state university preparation requirements.

Business – PreBusiness Preparation, A.A.

Location: Worthington

The associate in arts degree is a liberal arts transfer degree. While an A.A. degree might include a core of courses appropriate to a major field at the baccalaureate level, its focus is on general education or the first two years of a four-year preparation. To complete the degree students must fulfill the following requirements:

1. Successful completion of a minimum of 64 credits of which at least 20 must be earned at Minnesota West Community & Technical College.
2. A grade point average of 2.0 ("C") or better. A minimum of 40 credits of General education. This fulfills the MN Transfer Curriculum.

Recommended Areas:

- Area 1: Communications
- Area 2: Critical Thinking
- Area 3: Natural Science
- Area 4: Mathematical/Logical Reasoning - MATH 1111 College Algebra is the required math class.
- Area 5: History and the Social and Behavioral Sciences - ECON 2201 Macroeconomics and either Psychology or Sociology
- Area 6: The Humanities and Fine Arts

- Area 7: Human Diversity
- Area 8: Global Perspective
- Area 9: Ethical and Civic Responsibility
- Area 10: People and the Environment

18 credits selected from the list below:

BUS 2201	Principles of Accounting I	4
BUS 2202	Principles of Accounting II	4
ECON 2202	Principles of Microeconomics	3
MATH 1105	Intro to Probability & Statistics	4
Total Required Credits		15

Electives in business chosen from the following:

BUS 1101	Introduction to Business	4
BUS 2221	Principles of Management	3
BUS 2230	Principles of Marketing	3
BUS 2241	Business Law	3
BUS 2242	Business Communications	3

3. Physical Education/Health - HLTH 1101 and 1 PHED activity course.

4. CSCI 1102 Introduction to Microcomputers, 3 credits required.

World Language (Students who did not take two years of a world language in high school may need one year of college credits in a language to meet state university preparation requirements.)

Carpentry I, Diploma

Location: Pipestone

The Carpentry major prepares students for careers as carpenters in residential and commercial construction. This program prepares individuals to apply technical knowledge and skills to lay out, fabricate and repair wooden structure and fixtures, using hand and power tools. The program includes instruction in areas such as common systems of framing construction materials, estimating, blueprint reading and finish carpentry techniques.

CRPT 1101	Tool Safety, Construction Terms & Materials	2
CRPT 1105	Floor and Wall Framing	4
CRPT 1110	Roof Framing Part I	2
CRPT 1115	Insulation, Ventilation, Vapor Barriers & Dry Wall	2
CRPT 1120	Roof Framing Part II	2
CRPT 1125	Estimating and Blueprint Reading	3
CRPT 1130	Stairway Construction	2
CRPT 1135	Exterior Finishing Wall & Roof Covering	2
CRPT 1140	Proj Planning, Estimation, Layout	4
CRPT 1145	Interior Trim	2
CRPT 1150	Site Layout, FO, Blueprint Reading	4
CRPT 2271	Construction Drafting & Design	3
Electives		2
Total Credits		34

Carpentry II, Diploma

Location: Pipestone

The Carpentry major prepares students for careers as carpenters in residential and commercial construction. This program prepares individuals to apply technical knowledge and skills to lay out, fabricate and repair wooden structure and fixtures, using hand and power tools. The program includes instruction in areas such

as common systems of framing construction materials, estimating, blueprint reading and finish carpentry techniques. Carpentry I is a prerequisite to entering the Carpentry II program.

CRPT 2205	Foundations and Floors	3
CRPT 2215	Concrete Technology	2
CRPT 2235	Wall and Roof Framing	3
CRPT 2237	Exterior Finish and Shingling	4
CRPT 2242	Deck and Porch Construction	2
CRPT 2245	Cabinet Layout and Design	1
CRPT 2250	Cabinet Construction	5
CRPT 2249	Cabinet Installation	4
CRPT 2260	Interior Finish and Staircase Const.	3
CRPT 2270	Construction Business Mgt.	2
CRPT 2280	Insulation & Interior Wall Cover	3
Total Credits		32

Chemistry, A.A.

Location: Worthington

Students in chemistry will take the following courses at Minnesota West-Worthington campus. This program is patterned after the University of Minnesota and is an Associate in Science degree. This outline does not meet MTC requirements. Students interested in this degree should choose the Liberal Arts major on the application.

ENGL 1101	Composition I	3
MATH 1113	Pre-Calculus	4
MATH 1121	Calculus I	4
MATH 1122	Calculus II	4
MATH 2201	**Calculus III	4
CHEM 1101	General Inorganic Chemistry I	4
CHEM 1102	General Inorganic Chemistry II	4
SCSI 1102	Introduction to Microcomputers	3
Humanities Electives		6
Social Science Electives		6
CHEM 2201	Organic Chemistry I	5
CHEM 2202	Organic Chemistry II	5
PHYS 2121	General Physics I	5
PHYS 2122	General Physics II	5
Choose one of the following:		3
ENGL 1102	Composition II	3
ENGL 2276	Composition: Technical Writing	3
ENGL 2243	Composition: Creative Writing	3
Health/Physical Education		1
SPCH 1101	Introduction to Speech	3
Total Credits		64

*Minimums only.

**Depending on high school preparation and placements. Students planning to teach should include HLTH 1100 and 2220.

Note: Some universities and liberal arts colleges require a year of a FOREIGN LANGUAGE, preferably German, French. Check with the specific senior college from which you intend to obtain your degree.

An additional semester is required to complete the A.A. degree and the MTC requirements. Students should take: three credits in HUMANITIES; three credits in SOC SCI (PSCI 2210 or GEOG 1101 are recommended); three credits HLTH 1100; one credit PHED activity (if not previously completed); six-eight credits to complete Areas 7,8,9 and 10 unless

completed with HUM and SOC SCI courses. This is a total of 10-18 credits.

Child Development, Certificate

Location: Granite Falls

Persons completing this program would work in a variety of settings related to child care and education such as a preschools, day cares, public schools, Head Start programs, and private homes (e.g. nannies). Students enrolled in the program receive instruction in safety, health, nutrition, guidance, child development, and the preparation and presentation of learning experiences to enhance all areas of a child's development. This course of study is designed to improve the quality of services children receive, to increase professionalism in graduates, and to promote the overall development of children. Field experience and internships in various settings provide opportunities for students to apply their knowledge and skills. The Minnesota Department of Human Services will check the background of each applicant to ensure that there is no record of child maltreatment. The curriculum shown here is designed to enhance a child development professional's opportunity to advance in the field.

CDEV	1200	Professional Relations or	3
CDEV	1240	Family & Community Relations	3
CDEV	1262	Creative Activities	2
CDEV	1266	Foundations of Child Develop I Lab	1
HSER	1266	Foundations of Child Development	2
CDEV	1268	Children's Health, Nutrition & Safety Lab	2
HSER	1268	Children's Health, Nutrition & Safety	2
CDEV	1269	Guidance, Managing the Physical & Social Environment Lab	2
HSER	1269	Guidance: Managing the Physical and Social Environments	2
Total Credits			16

Child Development, Diploma

Location: Granite Falls

Persons completing this program would work in a variety of settings related to child care and education such as a preschools, day cares, public schools, Head Start programs, and private homes (e.g. nannies). Students enrolled in the program receive instruction in safety, health, nutrition, guidance, child development, and the preparation and presentation of learning experiences to enhance all areas of a child's development. This course of study is designed to improve the quality of services children receive, to increase professionalism in graduates, and to promote the overall development of children. Field experience and internships in various settings provide opportunities for students to apply their knowledge and skills. The Minnesota Department of Human Services will check the background of each applicant to ensure that there is no record of child maltreatment. The curriculum shown here is designed to enhance a child development professional's opportunity to advance in the field.

Prerequisite: Completed Certificate Program to enter the Diploma program.

GSSS	1100	Human Relations	2
GSCL	1105	Job Seeking Skills	1
GSCM	1120	Technical Writing	2
CDEV	1316	Foundations of Child Development II	3
CDEV	1340	Planning and Implementing	3
CDEV	1510	Internship	3
HLTH	1115	CPR/First Aid	1
CDEV	2560	Language & Literature Learning Experiences or	3
CDEV	1240	Family & Community Relations	3
Total Credits			34

Chiropractic, (pre-chiropractic) A.A.

Location: Worthington

This profession has experienced a strong resurgence in the past decade. The profession stresses a holistic approach to health. Chiropractors advocate that most common ills can be prevented and/or alleviated through exercise, nutrition, adjustment, maintenance, and personal health counseling. Minnesota West-Worthington campus provides all of the academic courses for the first two years of the chiropractic program. The transfer institutions (primarily Northwestern School of Chiropractics) for continued study readily accept our Associate of Science degree graduates. This program does not meet the MTC requirements. Students interested in this degree should choose the Liberal Arts major on the application.

ENGL	1101	Composition I	3
Choose one of the following:			3-4
MATH	1111	College Algebra	3
MATH	1113	Pre-Calculus	4
CHEM	1101	General Inorganic Chemistry I	4
CHEM	1102	General Inorganic Chemistry II	4
BIOL	1115	Human Biology	3
Choose one of the following:			3
ENGL	1102	Composition II	3
ENGL	2276	Composition: Technical Writing	3
ENGL	2243	Composition: Creative Writing	3
PHYS	1201	Fundamentals of Physics I	4
PHYS	1202	Fundamentals of Physics II	4
Humanities Electives*			3
		Physical Education Activity	1
SPCH	1101	Introduction to Speech	3
CHEM	1101	General Inorganic Chemistry I	4
CHEM	1102	General Inorganic Chemistry II	4
Choose two of the following:			8-10
BIOL	2250	Anatomy and Physiology I	4
BIOL	2260	Anatomy and Physiology II	4
BIOL	2245	**Medical Terminology	2
HLTH	1101	Personal Wellness	3
SOC	1101	Introduction to Sociology	3
PSYC	1101	Introduction to Psychology	4
CSCI	1102	Introduction to Microcomputers	3
Total Credits			64

* Minimum only

** Depends on transfer institution

Collision Repair Technology, Diploma

Location: Granite Falls

The collision repair industry offers a career that allows employees to see immediately the results of their efforts. Collision repair technicians repair damaged vehicles to their "pre-accident" condition by replacing or repairing and realigning the exterior panels made of sheet metal, plastic or fiberglass. In addition, the technicians must replace, straighten and align the structural components to bring the vehicle back to the factory specifications. Students in the two-year program spend the first year gaining valuable hands-on experience in areas such as welding, sheet metal repair, collision repair, refinishing, filler, adhesives, and plastics repair. Students who choose to continue through the second year of training learn the skills of collision damage repair and replacement, estimating, suspension and wheel alignment techniques, and auto body electrical systems. Students will be challenged to mix and match paints for spot repairs as well as to repair components on "repairable" vehicles. The customizing and restoration option available to students comes toward the end of the second year of training. Students work on vehicles to learn street rod construction, custom painting, custom vehicle modification and vehicle restoration.

General Studies/General Education Electives	10
TRAB 1200 Collision Repair Welding	4
TRAB 1206 Fiberglass and Plastic Repair	4
TRAB 1210 Collision Repair Metal Technology	3
TRAB 1215 Body Lab I	4
TRAB 1220 Collision Repair Refinishing	6
TRAB 1225 Assorted Collision Technology	3
TRAB 1232 Body Lab II	5
TRAB 1240 Intro to Auto Body	1
TRAB 2100 Color Matching & Blending/Spot Repairs	3
TRAB 2105 Repair/Replacement of Unibody and Frame Components	4
TRAB 2111 Auto Body Mechanical Repairs	5
TRAB 2112 Auto Body Electrical & Advanced System Repairs	2
TRAB 2115 Estimating Repairs	2
TRAB 2120 Body Shop Management	1
TRAB 2130 Custom Paint Layout & Appl.	3
TRAB 2160 Specialty Lab IV	4
TRAB 2165 Introduction to Special Interest Vehicles	4
Total Credits	68

Collision Repair - Special Interest Vehicle Technology, Certificate

Location: Granite Falls

This is a two-semester certificate curriculum consisting of 24 credits in both theory and actual hands-on lab situations. The prerequisites for this course of study are two years of technical education in Auto Body ,two years of Industry Experience , or Instructor Approval Students will learn the theory and techniques involved in the fabrication of needed body parts that can be made from steel and aluminum using not only hand tools but also some common pieces of fabrication equipment such as shrinkers & stretchers, bead rollers, as well as the English Wheel. Modifications that can be

performed on a vehicle's body, frame, suspension, and drivetrains beyond OEM specifications and appearance will be covered. These modifications fall in line with the construction of what are sometimes commonly called Customs and Street Rods . An area will also cover the utilization and installation of a variety of add-on body accessories that are available.

The welding techniques of MIG and TIG will be covered in joining light and heavy gauge steel, aluminum, and stainless steel. Aluminum and stainless steel polishing, powder coating, and vinyl graphics are all covered in one area of study. Basic automotive upholstery & trim work will be taught in the spring semester. This will include trim design, construction, and installation. To produce a technician with the ability to excel in this area, students will have the opportunity learn basic machine shop operations in an optional class available to them. Upon completion, the student-technician will be able to construct high quality custom modified vehicles and street rods as well as the skills necessary for vehicle restoration or a wide variety of other special interest vehicles.

TRAB 2210 Metal Parts Fabrication	3
TRAB 2215 Modified Vehicle Construction I	6
TRAB 2220 Specialty Vehicle Welding	2
TRAB 2225 Specialty Visual Enhancements	4
TRAB 2230 Modified Vehicle Construction II	5
TRAB 2235 Basic Auto Upholstery & Trim	2
TRAB 2236 Industry Collaboration	1
TRAB 2237 Industry Interaction	1
Total Credits	24

Collision Repair - Basic Auto Body Technology, Certificate

Location: Granite Falls

TRAB 1200 Collision Repair Welding	4
TRAB 1206 Fiberglass and Plastic Repair	4
TRAB 1210 Collision Repair Metal Technology	3
TRAB 1215 Body Lab I	4
TRAB 1220 Collision Repair Refinishing	6
TRAB 1225 Assorted Collision Technology	3
TRAB 1232 Body Lab II	5
TRAB 1240 Intro to Auto Body	1
Total Credits	30

Collision Repair Technician, Certificate

Location: Granite Falls

TRAB 2100 Color Matching & Blending/Spot Repairs	3
TRAB 2105 Repair/Replacement of Unibody and Frame Components	4
TRAB 2111 Auto Body Mechanical Repairs	5
TRAB 2115 Estimating Repairs	2
TRAB 2150 Specialty Lab II	2
TRAB 2112 Auto Body Electrical & Advanced System Repairs	2
TRAB 2120 Body Shop Management	1
TRAB 2130 Custom Paint Layout & Appl.	3
TRAB 2160 Specialty Lab IV	4
TRAB 2165 Intro to Special Interest Vehicles	4
Total Credits	30

Computer Applied Technology, A.S.**Location: Worthington**

The completion of the Computer Applied Technology Degree offers the student an opportunity to transfer into several articulated Baccalaureate programs. While students concentrate on an area of study in computer science, they are assured that after completion of this degree, they are employable in many technical and business settings, including manufacturing companies, data processing firms, software development companies, banks, insurance companies, government agencies, colleges and universities. The degree is heavily dependent upon technology based course offerings. To complete the degree students must fulfill the following requirements:

1. Successful completion of 64 credits of which at least 20 must be earned at Minnesota West Community & Technical College.
2. A grade point average of 2.0 ("C") or better.
3. A minimum of 30 credits from the four general education categories listed below:
 - A. Communications - a minimum of 6 credits
ENGL 1101 Composition I, required,
ENGL 2276 or SPCH 1101
 - B. Four or more credits from each of the following areas to total 24. Science/Math – MATH1111 or PHIL 1200 required.
 - C. Behavior/Social Science - PSYC 1101 or ECON 2201 or ECON 2202 required.
 - D. Humanities fulfill at least a 32 credit core of technical courses unique to the Computer Applied Technology Program. (see table below)

A minimum of 24 credits:

CSCI 2100	Adv Microcomputer Applications	4
CSCI 2140	Spreadsheets & Graphics	3
CSCI 2200	Visual Basic Programming	4
CSCI 2250	Java Programming	4
CSCI 2255	Java Programming II	4
CSCI 2290	Technology Capstone Seminar	1

Plus one additional Programming Language:

CSCI 2215	Web Programming I	3
CSCI 2240	Fundamentals of Programming I	4
CSCI 2260	Assembly Language Programming	4

A minimum of eight credits in related area:

BUS 1101	Introduction to Business 4
BUS 2201	Principles of Accounting I 4

4. Physical Education/Health- a minimum of one course.
5. CSCI 1102 Introduction to Microcomputers, 3 credits required

Computer Engineering Technology, A.A.S.**Location: Jackson**

The Computer Engineering Technology program prepares individuals to apply basic engineering principles and technical skills in designing and developing computer systems and installations.

Includes instruction in computer electronics and programming, prototype development and testing, systems installation and testing, peripheral equipment and report preparation.

CSCI 1102	Introduction to Microcomputers	3
CST 1111	File Structures	3
ELCO 1100	Electrical Circuits Fundamentals	3
ELCO 1105	Electrical Circuits Fund Lab	3
CST 1190	Introduction to Networking	3
CST 1125	Operating Systems	3
CST 2230	Novell Netware Administration I	3
CST 2110	PC Maintenance and Repair I	3
CST 1215	Windows 2000 Server	3
CSCI 2200	Visual Basic Programming	4
	or	
CST 2125	Overlay Design with Visual Basic	3
CST 2215	PC Maintenance and Repair II	3
ELTL 1104	Basic Digital Circuits	2
CST 2310	Info Technology Customer Service	2
GSCL 1105	Job Seeking Skills	1

General Education-20 credits as follows:

ENGL 1101	Composition I	3
MATH 1107	Integrated Math	3
	or	
MATH 1111	College Algebra	3
PSYC 1101	Intro to Psychology	4
	or	
SOC 1101	Intro to Sociology	3
SPCH 1101	Intro to Speech	3

Humanities Electives, 3 credits:

Art, Foreign Language, Literature, Music, Philosophy, Theatre, Western Civilization

General Education Electives - 4 or 5 credits as follows: English, Biology, Chemistry, Math above 1000 level, Physics, Natural Science, Art, Foreign Language, Literature, Music, Philosophy, Theater, Western Civilization, Economics, Geography, History, Political Science, Psychology, and Sociology

Total Credits 64

Computer Engineering Technology, Diploma**Location: Jackson**

The Computer Engineering Technology program prepares individuals to apply basic engineering principles and technical skills in designing and developing computer systems and installations. Includes instruction in computer electronics and programming, prototype development and testing, systems installation and testing, peripheral equipment and report preparation.

CSCI 1102	Introduction to Microcomputers	3
CST 1111	File Structures	3
CST 1190	Introduction to Networking	3
CST 2230	Novell Netware Administration I	3
	or	
CST 1215	Windows 2000 Server	3
CST 1125	Operating Systems	4
ELCO 1100	Electrical Circuits Fundamentals	3
ELCO 1105	Electrical Circuits Fund Lab	3
CST 2110	PC Maintenance and Repair I	3
CSCI 2200	Visual Basic Programming	4
	or	
CST 2125	Overlay Design with Visual Basic	3
CST 2215	PC Maintenance and Repair II	3

ELTL	1104	Basic Digital Circuits	2
Total Credits			48

General Education or Related-10 credits

would include the following classes:

GSCM	1120	Technical Writing	
GSSS	1100	Human Relations	
GSCL	1105	Job Seeking Skills	
English, Biology, Chemistry, Math above 1000 level, Physics, Natural Science, Art, Foreign Language, Literature, Music, Philosophy, Theater, Western Civilization, Economics, Geography, History, Political Science, Psychology, and Sociology			

For 4 credits of suggested Electives, choose from the following:

ADSA	1100	College Keyboarding I	3
ADSA	1122	Word Processing I	2
ADSA	1190	Presentation Graphics	2
CST	2326	Web Page Concept	2
ELTL	1115	Interactive Systems	3
ELTL	1101	Basic Telecommunications	3

Computer and Information Technology, A.A.S.

Location: Worthington

Although successful completion of the Computer and Information Technology (CIT) program prepares the student for employment within the dynamic computer, electronic information and technology areas, the program is specifically designed to maximize transferability into the Bachelor of Applied Science (BAS) at Minnesota State University, Mankato, MN. This degree also articulates to Moorhead State University, Moorhead, MN and Southwest Minnesota State University, Marshall, MN. Students are encouraged to consult with counselors, faculty and/or advisors at Minnesota West and the transfer institution of their choice.

ENGL	1101	Composition I	3
MATH	1111	College Algebra	3
PHYS	1201	Fundamentals of Physics	4
SPCH	1101	Introduction to Speech	3
Select a minimum of 3 credits from the following:			
HIST	1101	American History I	4
HIST	1102	American History II	4
GEOG	1100	Introduction to Geography	3
GEOG	1101	Introduction to Physical Geography	4
PSCI	1101	Introduction to Political Science	3
PSCI	1201	American Government and Politics	3
PSCI	2210	Environmental Politics	3
PSCI	2202	State and Local Government	3
PSYC	1101	Introduction to Psychology	4

Select a minimum of 3 credits from the following:

ART	2240	Art History	3
ART	2245	Art History II	3
HIST	1111	Western Civilization I	3
HIST	1112	Western Civilization II	3
ENGL	1105	Introduction to Literature	3
ENGL	2201	Survey of American Literature I	3
ENGL	2202	Survey of American Literature	3
PHIL	2201	Introduction to Ethical Theory	1
PHIL	2202	General Applied Ethics	1
PHIL	2231	Western Religions: Christianity, Islam & Judaism	1
PHIL	2232	Easter Religions: Hinduism, Buddhism & Confucianism	1
PHIL	2233	Natural Religions: Taoism,	

Shamanism & Native American	1
Elective	1

CST	1111	File Structures	3
CST	1190	Introduction to Networking	3
CST	2110	PC Maintenance & Repair I	3
CST	2215	PC Maintenance & Repair II	3
CST	2220	Windows NT Administration I	3
CST	2310	Info Technology Customer Service	2
CST	2199	Internship	
or			
CSCI	2290	Technology Capstone Seminar	
or			
CSCI	2297	Computer Science Internship	1-8
ENGL	2276	Composition: Technical Writing	3
CSCI	1102	Introduction to Microcomputers	3
CSCI	2200	Visual Basic Programming	4
CSCI	2202	Computers, Technology & Society	4
CSCI	2250	Java Programming	4
CSCI	2255	Java Programming II	4

Select one of the following courses

CSCI	2240	Fundamentals of Programming I	4
CSCI	2260	Assembly Programming	5
MATH	1121	**Calculus I	5

Total Credits 64

*Baccalaureate admission requires a 2.50 or higher GPA in core courses; to include a recommended minimum of a "B" in CSCI 2250 and a minimum of a "C" in CSCI 2255.

**If not completed within A.A.S., additional mathematics will be required at Minnesota State University, Mankato.

Computer Information Science (CIS), A.A.

Location: Worthington

The associate in arts degree is a Liberal Arts transfer degree. While an Associate in Arts degree might include a core of courses appropriate as the transfer track to the major field of Computer Information Science at the baccalaureate level, its focus is on general education or the first two years of a four-year preparation.

To complete the degree students must fulfill the following requirements:

1. Successful completion of a minimum of 64 semester credits.
2. A grade point average of 2.0 ("C") or better.
3. A minimum of 41 credits of general education. This fulfills the Minnesota Transfer Curriculum.
 - A. Communications - required ENGL1101, ENGL2276 and SPCH1101.
 - B. Critical Thinking: Any student who completes the general education curriculum will have completed the requirements for this goal.
 - C. Natural Science
 - D. Mathematical/Logical Reasoning: required MATH1105 and MATH1111 or MATH1121
 - E. History and the Social and Behavioral Sciences
 - F. The Humanities
 - G. and Fine Arts

- H. Human Diversity
 - I. Global Perspective
 - J. Ethical and Civic Responsibility
 - K. People and the Environment
4. Computer Information Science core: 16
(Baccalaureate admission requires a 2.50 or higher GPA in core courses, including a minimum of a "B" in CSCI2250 and a minimum of a "C" in CSCI2255) (see table below)
- | | | |
|-----------|---------------------------|---|
| CSCI 2250 | Java Programming I | 4 |
| CSCI 2255 | Java Programming II | 4 |
| CSCI 2280 | Systems Analysis & Design | 4 |
- Choose one of the following courses**
- | | | |
|-----------|-------------------------------|---|
| CSCI 2200 | Visual Basic Programming | 4 |
| CSCI 2210 | Structured COBOL Programming | 4 |
| CSCI 2240 | Fundamentals of Programming I | 4 |
| CSCI 2260 | Assembly Language Programming | 4 |
5. Physical Education/Health required HLTH1100 and one PHED activity course, 4 credits.
6. CSCI 1102 Introduction to Microcomputers, 3 credits required.
7. World Language: (Students who did not take two years of a world language in high school may need one year of college credits in a language to meet state university preparation requirements.)

Computer Specialist, A.A.S.

Location: Worthington

The Computer Specialist A.A.S. Degree provides the student with a career entry employment opportunity for a wide variety of employers including manufacturers, data processing companies, banks, insurance companies, bookkeeping companies and departments, medical facilities and government agencies. The program is designed to be heavily dependent on technology as a method of course delivery, communications and student learning.

To complete the degree students must fulfill the following requirements:

1. Successful completion of 64 credits, 20 of which must be earned at Minnesota West Community & Technical College.
2. A grade point average of 2.0 ("C") or better.
3. A minimum of 20 credits from the four general education categories listed below:

Communications

- a minimum of 3 credits - required ENGL 1101

Science/Math

- a minimum of 3 credits - required MATH 1105 or MATH 1111 or PHIL 1200

Behavioral/Social Science

- a minimum of 3 credits

Humanities

- a minimum of 3 credits

4. A minimum of 30 credits in career courses (see table below)

CSCI 1101	Intro to Selected OS	1
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CSCI 1120	Introduction to Internet	1
CSCI 1150	Presentation Development	3
CSCI 2100	Advanced Microcomputer Applic.	4
CSCI 2120	Publishing Web Pages	1
CSCI 2130	Database Management	3
CSCI 2140	Electronic Spreadsheets/Graphics	3
CSCI 2200	Visual BASIC Programming	4
CSCI 2290	Technology Capstone Seminar	1
Total Credits		21

5. CSCI 1102 Introduction to Microcomputers, 3 credits required

Electives sufficient to total 64 credits

Nine credits of electives from the following:

BUS 1101	Introduction to Business	4
BUS 2200	Intro Management Info Systems	3
CSCI 2210	Structured COBOL Programming	4
CSCI 2240	Fundamentals of Programming I	4
CSCI 2245	Fundamentals of Programming II	4
CSCI 2250	Java Programming I	4
CSCI 2255	Java Programming II	4
CSCI 2260	Assembly Language	4

Computer Support Technician, A.A.S.

Location: Granite Falls

Computer support technicians solve software and hardware problems, set up computer systems, install new software and hardware, train users, and maintain networks. Support technicians may work directly with computer users in person or provide support over the phone through a help desk. This major provides hands-on training in computer operating system operation, the use of application software, network administration and installation, software installation and removal, computer maintenance and repair, hardware installation, and help desk skills. This training provides the students with practical knowledge needed to solve computer problems.

General Education

ART 2230	Computer Graphics	3
	or	
	Humanities Requirement	3
ENGL 0090	Essentials of Writing (If needed)	2
ENGL 1101	Composition I	3
MATH 0098	Higher Algebra I (If needed)	3
	or	
MATH 0099	Higher Algebra II (If needed)	3
	or	
MATH 1111	College Algebra	3
ENGL 2276	Technical Writing	3
SPCH 1101	Speech	3
	Math Requirement	3
	General Education Electives	3
ACCT 1120	Spreadsheet Concepts	2
ACCT 1122	Database Concepts	2
ADSA 1190	Presentation Graphics	2
ADSA 1122	Word Processing I	2
CSCI 1102	Introduction to Microcomputers	3
CSCI 2200	Visual Basic	3
CST 1111	File Structures	3
CST 1125	Operating Systems	3
CST 1135	Unix Operating System	3
CST 1190	Introduction to Networking	3

CST	1180	Data Security Awareness	1
CST	1200	Introduction to Information Security	3
CST	1220	Information Security Management	3
CST	1250	Information Security Administration	3
CST	1300	Computer Forensics	3
CST	2110	PC Maintenance and Repair	3
CST	2125	Overlay Design with Visual Basic or	
CST	2215	PC Maintenance and Repair II	3
CST	2223	Windows Network Administration I	3
CST	2230	Novell NetWare Administration I	3
CST	2310	Info Technology Customer Service	2
CST	2326	Web Page Concepts	2
CST	2340	Web Server Concepts	3
CST	2413	Windows Network Administration II	3
CST	2420	Novell NetWare Administration II	3
GSCL	1105	Job Seeking Skills	1
Total Credits			68

* Other electives may be accepted with advisor approval.

Computer Support Technician, Diploma

Location: Granite Falls

ACCT	1120	Spreadsheet Concepts and Appl.	2
ACCT	1122	Database Concepts	2
ADSA	1122	Word Processing I	2
ADSA	1190	Presentation Graphics	2
CSCI	1102	Introduction to Microcomputers	3
CST	1111	File Structures	3
CST	1125	Operating Systems	3
CST	1135	Unix Operating System	3
CST	1180	Data Security Awareness	1
CST	1190	Introduction to Networking	3
CST	1200	Introduction to Information Security	3
CST	1220	Information Security Management	3
CST	1250	Information Security Administration	3
CST	1300	Computer Forensics	3
CST	2110	PC Maintenance and Repair	3
CST	2125	Overlay Design with Visual Basic	3
CST	2215	PC Maintenance & Repair II	3
CST	2223	Windows Network Administration I	3
CST	2230	Novell NetWare Administration I	3
CST	2310	Info Technology Customer Service	2
CST	2326	Web Page Concepts	2
CST	2340	Web Server Concepts	3
CST	2413	Windows Network Administration II	3
CST	2420	Novell NetWare Administration II	3
ENGL	1101	Composition I	3
ENGL	2276	Technical Writing	3
GSCL	1105	Job Seeking Skills	1
MATH	0098	Higher Algebra I (If needed)	3
MATH	0099	Higher Algebra II (If needed)	3
General Education Math Requirement			3
Total Credits			64

* Other electives may be accepted with advisor approval.

Computer Maintenance and Repair, Certificate

Location: Granite Falls, Jackson

Students in the Computer Maintenance and Repair certificate receive training in administrating, installing and configuring computers; installing, implementing and utilizing software; and upgrading and troubleshooting personal computer hardware. This program provides training in personal computer (PC)

maintenance and repair, operating systems, including Windows and DOS, and help desk etiquette. This program is designed to prepare the students for CompTIA's A + certification. A successful graduate will be prepared to work in the fields of PC maintenance and repair, help desk and software support.

CSCI	1102	Introduction to Microcomputers	3
CST	1111	File Structures	3
CST	2110	PC Maintenance & Repair	3
ADSA	1122	Word Processing I	2
GSSS	1100	Human Relations	2
CST	1135	Unix Operating System	3
CST	2326	Web Page Concepts	2
CST	2999	Special Topics: (1-3 Credits)	2
CST	1125	Operating Systems	3
CST	1180	Data Security Awareness	1
CST	1190	Introduction to Networking	3
CST	2215	PC Maintenance & Repair II	3
CST	2310	Info Technology Customer Services	2
GSCL	1105	Job Seeking Skills	1
Electives			4
Total Credits			26

Successful candidates may complete more than the required 26 credits.

(Computer) Information Security and Assurance, A.A.S.

Location: Online

This program prepares students to assess, administer and secure computer information systems and networks by performing technical security audits and implementing numerous technical information solutions to bring networks into compliance.

ENGL	1101	Composition I	3
ENGL	2276	Technical Writing	3
MATH	1111	College Algebra (recommended)	3
or			
Math/Science Elective			3

General Education Electives in one additional area of the curriculum including Humanities or Social Sciences 3

Additional General Education Electives 4

General Education Requirements 16

CST	1111	File Structures	3
CST	1125	Operating Systems	3
CST	1135	Unix Operating Systems	3
CST	1190	Introduction to Networking	3
CST	1200	Introduction to Information Security	3
CST	1220	Information Security Management	3
CST	1250	Information Security Administration	3
CST	1300	Computer Forensics	3
CST	1500	Routers and Switches	3
CST	2310	Information Technology Customer Service	2
CST	2223	Windows Network Administration I	3
CST	2340	Web Server Concepts	3
CST	2500	Incident Response and Disaster Recovery	3

CSCI 1102 Introduction to Microcomputers 3

Total Required Courses 41

Technical Education Electives – choose from the following:

CST	1180	Data Security Awareness	1
CST	2110	PC Maintenance and Repair I	3
CST	2230	Novell Netware Administration I	3
CST	2520	Ethical Hacking	2
CST	2413	Windows Network Administration II	3
CST	2420	Novell Netware Administration II	3
CST	2600	Fundamentals of Wireless Networking	3
CST	2999	Special Topics	1-3
		Total Technical Electives	7
		Total Credits	64

(Computer) Information Security Administration, Certificate

Location: Granite Falls

The Information Security Administration Certificate addresses the actual setup and maintenance of a secure environment designed in the Information Security Management Certificate courses. This certificate will include authentication and securing servers, workstations and their file systems. Students will setup routers and firewalls and study computer forensics. This course is designed for the technician who will be responsible for the setup and maintenance of a secure environment.

CSCI	1111	File Structures	3
CST	1127	Windows Desktop Operating Syst.	3
		or	
CST	1125	Operating Systems	4
CST	1250	Information Security Administration	3
CST	1300	Computer Forensics Electives	3
		Total Credits	15

(Computer) Information Security Management, Certificate

Location: Online

Students in the Information Security Management Certificate learn to assess the need for security; examine ethical, legal and professional security issues; assess and control risks; design secure networks; examine disaster recovery plans; educate personnel; and maintain a security program. In addition the students learn about the theory of authentication, encryption, attacks and malicious code; and the components of a secure network, including web servers and remote access. This certificate is designed for the person responsible for the security direction of the organization, including managers, accounting personnel, administrative assistants and computer technical support personnel. This certificate is offered in an online format and can be completed in two semesters.

CSCI	1102	Introduction to Microcomputers	3
CST	1190	Introduction to Networking	3
		or	
CST	1195	Information Security Network Basics2	
CST	1200	Introduction to Information Security	3

CST	1220	Information Security Management Electives	3
		Total Credits	14

(Computer) Information Security Management, Certificate

Location: Online

Students in the Information Security Management Certificate learn to assess the need for security; examine ethical, legal and professional security issues; assess and control risks; design secure networks; examine disaster recovery plans; educate personnel; and maintain a security program. In addition the students learn about the theory of authentication, encryption, attacks and malicious code; and the components of a secure network, including web servers and remote access. This certificate is designed for the person responsible for the security direction of the organization, including managers, accounting personnel, administrative assistants and computer technical support personnel. This certificate is offered in an online format and can be completed in two semesters.

CSCI	1102	Introduction to Microcomputers	3
CST	1190	Introduction to Networking	3
		or	
CST	1195	Information Security Network Basics2	
CST	1200	Introduction to Information Security	3
CST	1220	Information Security Management Electives	3
		Total Credits	14

(Computer) Management Information Systems (MIS), A.A.

Location: Worthington

The associate in arts degree is a liberal arts transfer degree. While an Associate in Arts degree might include a core of courses appropriate as a transfer track to the major field of Management Information Systems at the baccalaureate level, its focus is on general education or the first two years of a four year preparation. To complete the degree students must fulfill the following requirements:

1. Successful completion of a minimum of 64 semester credits.
2. A grade point average of 2.0 ("C") or better.
3. A minimum of 40 credits of general education. This fulfills the Minnesota Transfer Curriculum.
 - A. Communications
 - B. ENGL 1101, ENGL 2276 and SPCH 1101 required.
 - C. Critical Thinking: Any student who completes the general education curriculum will have completed the requirements for this goal.
 - D. Natural Science
 - E. Mathematical/Logical
 - F. Reasoning: required MATH 1111 or higher
 - G. History and the Social and Behavioral Sciences

- H. The Humanities and Fine Arts
- I. Human Diversity
- J. Global Perspective
- K. Ethical and Civic Responsibility
- L. People and the Environment

4. Management Information Systems core: 16
(Baccalaureate admission requires a 2.50 or higher GPA in core courses, including a minimum of a "B" in CSCI2250 and a minimum of a "C" in CSCI2255)
See required courses below.

CSCI	2250	Java Programming I	4
CSCI	2255	Java Programming II	4
BUS	2201	Principles of Accounting I	4
BUS	2202	Principles of Accounting II	4

5. Physical Education/Health required HLTH1101 and one PHED activity course, 4 credits.

6. CSCI1102 Introduction to Microcomputers, 3 credits required.

7. World Language: (Students who did not take two years of a world language in high school may need one year of college credits in a language to meet state university preparation requirements.)

The following electives will also transfer into MIS at a state university.

- a. CSCI 2280 Systems Analysis & Design
- b. BUS 2200 Intro to Mgt Info Systems

Networking Specialist, A.S.

Location: Worthington

The Networking Specialist AS program is designed to provide students with specialized skills in Microsoft technologies including preparedness for the MCSE Microsoft certification exams. Students will also gain knowledge in programming languages for local and wide area networking. Upon completion, students will be ready to enter the information technology (IT) job market or optionally transfer to Colorado Technical University, Sioux Falls, SD, to complete the Bachelor of Science in Information Technology (BSIT) degree.

To complete the degree students must fulfill the following requirements:

1. Successful completion of 64 credits of which at least 20 must be earned at Minnesota West Community & Technical College.
2. A grade point average of 2.0 ("C") or better.
3. A minimum of 30 credits from the four general education categories listed below:
 - A. Communications - a minimum of 9 credits
ENGL 1101 and ENGL 2276 and SPCH 1101 required.
 - B. Four or more credits from each of the following areas to total 21.
 - C. MATH 1111 and a lab science course from either Chemistry or Physics – required.

D. Behavior/Social Science – PSYC 1101 and ECON 2201 ECON 2202 required.

E. Humanities ART 2230 and ART 2232 required.

F. General Education electives to total 30 credits.

4. Fulfill at least a 30 credit core of technical courses unique to the program. (see table below)

5. Physical Education/Health - a minimum of one course.

6. CSCI 1102 Introduction to Microcomputers, 3 credits required, World Language (Students who did not take two years of world language in high school may need one year of college credit in a language to meet state university preparation requirements).

MCSE Track

CST	2224	Windows Client/Server Admin	4
CST	2284	Microsoft Exchange Server	3
CST	2291	Windows Network Infrastructure I	3
CST	2293	Windows Network Infrastructure II	3
CST	2294	Windows Directory Service Infrastructure	3
CST	2298	Windows Network Security	3

Programming Languages

CSCI	2200	Visual Basic Programming	3-4
CSCI	2215	Web Programming I	3
CSCI	2250	Java Programming I	3-4

Optional Transferable Electives:

CSCI	2240	Fundamentals of Programming I – C++	3-4
CSCI	2245	Fundamentals of Programming II – C++	3-4
CSCI	2255	Java Programming II	3-4
Total Credits			64

Networking Specialist, A.A.S.

Location: Jackson

This program prepares students to install, administer and troubleshoot networks. The network specialist courses will provide the student with the knowledge and skills necessary to provide support to a variety of network operating system platforms. This course begins with the entry-level workstation and server classes, which will introduce the student to the network environment. Once this knowledge is obtained, the student will move on to upper level classes including TCP/IP and Internet Information Server. Topics covered also include hardware and software implementation and operation and maintenance, and various software packages.

General Education			20
ENGL	1101	Composition I	3
MATH	1111	College Algebra	3
or			
Math/Science Elective			
PSYC	1101	Introduction to Psychology	4

	or		
SOC	1101	Introduction to Sociology	3
SPCH	1101	Speech	3

Humanities Electives choose from: 3
 Art, Foreign Language, Literature, Music, Philosophy, Theater, Western Civilization

General Education Electives choose from: 4-5
 English, Biology, Chemistry. Math above 1000 level, Physics, Natural Science, Art, Literature, Music, Philosophy, Theater, Western Civilization, Economics, Geography, History, Political Science, Psychology, and Sociology

CSCI	1102	Introduction to Microcomputers	3
CST	1111	File Structures	3
CST	1125	Operating Systems	4
CST	1135	Unix Operating Systems	3
CST	1190	Introduction to Networking	3
CST	1215	Windows 2000 Server	3
CST	1270	Windows XP Professional	3
CST	1500	Rotor Admin	3
CST	2110	PC Maintenance and Repair I	3
CST	2230	Novell NetWare Administration	3
CST	2224	Window Client/Server Admin	3
CST	2240	Home Networking	2
CST	2230	Novell NetWare Administration I	3
CST	2291	Window Network Infrastructure	3
CST	2298	Windows Network Security	3
CST	2310	Information Technology Customer Service	2
CST	2340	Web Server Concepts	3
ELTL	1108	Structured Communication Syst Technical Electives	3 5
Total Credits			68

Networking Specialist, Diploma
Location: Jackson

ACCT	1120	Spreadsheet Concepts and Apps.	2
ACCT	1122	Database Concepts	2
CSCI	1102	Introduction to Microcomputers	3
CST	1111	File Structures	3
CST	1125	Operating Systems	4
CST	1190	Introduction to Networking	3
CST	1210	Windows 2000 Professional	3
		or	
CST	1270	Windows XP	3
CST	1215	Windows 2000 Server	3
CST	2110	PC Maintenance & Repair	3
CST	2216	Windows 2000 Network Infrastructure	3
CST	2230	Novell NetWare Administration I	3
CST	2310	Information Technology Customer Service	2
GSCCL	1105	Job Seeking Skills	1

General Education or Related-10 credits from the following:
 GSSS 1100-Human Relations, GSCM 1120-Technical Writing
or the following General Education Classes:
 English, Biology, Chemistry, Math above 1000 level, Physics, Natural Science, Art, Foreign Language, Literature, Music, Philosophy, Theater, Western

Civilization, Economics, Geography, History, Political Science, Psychology, and Sociology

4 Credits of Technical Electives from the suggested following courses:

ACCT 1120-Spreadsheets, ACCT 1122 - Database, ADSA 1100 - College Keyboarding I, ADSA 1122 - Word Processing I, ADSA 1190 - Presentation Graphics, CSCI 2200 - Visual Basic, CST 2215 - PC Maintenance and Repair II

Total Credits 48

Web Development, A.S.
Location: Worthington

The completion of the Web Development Science A.S. Degree prepares the student for the evolving electronic paradigm of a growing Internet presence demand by business settings including manufacturing, data processing firms, software development, banking, financing and insurance companies, government agencies, colleges and universities. The program involves the analysis, design, development and maintenance of source code supporting an Internet presence. Unique legal, hardware/software, security, financial and risk issues related to promoting an Internet presence are integrated with case studies designed to demonstrate the intricacies of related programming solutions.

- To complete the degree students must fulfill the following requirements:
- Successful completion of a minimum of 65 credits, 20 of which must be earned at Minnesota West.
- A grade point average of 2.00 ("C") or better.
- A minimum of 30 credits from the four general education categories listed below.
 - Communications - a minimum of 9 credits ENGL 1101, ENGL 2276, and SPCH 1101 - required
 - Four or more credits from each of the following areas to total 21 credits:
 - Science/Math: MATH 1111 - required. A lab science course from either Chemistry or Physics - required.
 - Behavior/Social Science: PSYC 1101 or ECON 2201 - required
 - Humanities
 - General Education electives total 30 credits
- Fulfill at least a 30 credit core of technical courses unique to program from the table below.
- Physical Education/health - a minimum of one course.
- CSCI1102, 3 credits, required.
- World Language - Students who did not take two years of a world language in high school may need

one year of college credits in a language to meet state university preparation requirements.

Web Development

CSCI	2130	Database Management	3
CSCI	2150	Multimedia for the Web	3
CSCI	2215	Web Programming I	3
CSCI	2250	Java Programming	4

Business and Web Commerce

BUS	2201	Principles of Accounting I	4
BUS	2202	Principles of Accounting II	4
CSCI	2135	Advanced Web Techniques (ASP, VBScript/Java Script)	3
CSCI	2140	Spreadsheets and Graphics	3

Secondary Programming Language: Select a minimum of one course from the following:

CSCI	2200	Visual Basic Programming	3-4
CSCI	2240	Fundamentals of Programming I C++	3-4
CSCI	2245	Fundamentals of Programming II C++	3-4
CSCI	2255	Java Programming II	4

Convergence Technologies, A.A.S.

Location: Jackson

The Convergence Technologies Degree prepares students for the world of evolving networks today. Technology convergence is the merging of networks that support many different types of traffic: data, audio, video, and interactive multimedia, to a single network. This degree covers vendor-independent networking skills and concepts required for employment in the information technology, telecommunications, and other related industries. Certifications obtainable from completion of this include: A+ Network +, MCP, CTP.

20 General Education credits as follows:

ENGL	1101	Composition I	3
MATH	1100	Integrated Math	3
		or	
MATH	1111	College Algebra	3
PSYC	1101	Introduction to Psychology	4
		or	
SOC	1101	Introduction to Sociology	3
SPCH	1101	Speech	3

Humanities Electives from:

Art, Foreign Language, Literature, Music, Philosophy, Theatre, Western Civilization

General Education Electives from: 4 or 5

English, Biology, chemistry, Math above 1000 level, Physics, Natural Science, Art, Foreign Language, Literature, Music, Philosophy, Theatre, Western Civilization, Economics, Geography, History, Political Science, Psychology, and Sociology

CST	1111	File Structures	3
CST	1190	Introduction to Networking	3
ELTL	1102	Telecommunications I	3
CST	1200	Intro to Information Security	3
CST	2224	Windows Client/Server Admin	4
CST	2310	Info Technology Customer Service	2
ELTL	1103	Telecommunications II	3
CST	2110	PC Maintenance & Repair I	3

ELTL	1108	Structured Communication Syst	3
ELTL	2110	Fiber Optics	3
ELTL	2102	Wireless Technologies	3
CST	2215	PC Maintenance & Repair II	3
ELTL	2116	Broadband Communications	2
ELTL	2217	Voice over IP	3
ELTL	2200	Convergence Technologies	3
CST	1135	Unix Operating Systems	3
		or	
CST	2230	Novell Netware Administration	3
		Technical Electives	7
		Total Credits	72

Cosmetology, Diploma

Locations: Jackson and Pipestone

Students receive theory as well as practical experience in hair, skin and nail care through classroom study, demonstrations and practical experience in the campus clinic. Areas of study include sanitation and sterilization techniques, hygiene and grooming. Upon completion of the required curriculum, students take the Board Licensure Examination administered by the Minnesota Department of Commerce, Cosmetology segment. Under the option plan, cosmetology provides extra hours for licensure in states that require more hours. Some of the opportunities include: beauty salon owner, beauty salon manager, make-up artist, specialist in a particular branch of cosmetology, colorist, hair and scalp specialist, esthetician, stylist, manufacturer's representative and others.

COSM	1100	Preclinic Introduction	4
COSM	1105	Preclinic Hair Care	4
COSM	1110	Preclinic Nail Care	4
COSM	1115	Preclinic Chemical Control	3
COSM	1120	Preclinic Skin Care	3
COSM	1125	Preclinic Hair Care	3
COSM	1135	Salon Preparation	4
COSM	1130	Advanced Hair Care	4
COSM	1140	Clinic I	4
COSM	1145	Clinic II	4
COSM	1150	Clinic III	4
COSM	1155	Clinic IV	3
COSM	1160	Clinic V	4
COSM	1165	Clinic VI	4
COSM	1170	Clinic VII	4
COSM	1175	Clinic VIII	3
COSM	1181	License Prep. for Cosmetology I	2
COSM	1182	License Prep. for Cosmetology II	2
		Total Credits	63

Esthetician, Certificate

Locations: Jackson and Pipestone

Opportunities include specializing in a particular branch of cosmetology and preparation for Estheology Clinic/Licensure.

COSM	1100	Preclinic Introduction	4
COSM	1120	Preclinic Skin Care	3
COSM	1135	Salon Preparation	4
COSM	1140	Clinic I	4
COSM	1145	Clinic II	4
COSM	1150	Clinic III	4
ESTH	1100	Estheology Clinic/ License Preparation	3
		Total Credits	26

Manicurist, Certificate**Locations: Jackson and Pipestone**

This certificate provides the opportunity to specialize in a particular branch of cosmetology and prepares the student for Nail Clinic and Licensure.

COSM	1100	Preclinic Introduction	4
COSM	1110	Preclinic Nail Care	4
NAIL	1200	Nail Technology	4
NAIL	1100	Nail Clinic/License Preparation	4
Total Credits			16

Dental Assistant, A.A.S.**Location: Canby**

The Dental Assisting program is designed to prepare individuals for Dental Assisting careers in a dental office. This may be as an assistant to either a dentist or a dental hygienist in a dental practice. The program is accredited by the Dental Assisting National Board and upon completion the student will take national and state examinations leading to certification and registration in their field. The course work is in bio-medical studies, dental sciences, clinical practices, and expanded functions allowed by the state of Minnesota. Students will spend nine weeks in extramural clinical experiences in area dental offices.

BIOL	1110	Principles of Biology	4
ENGL	1101	Composition I	3
PSYC	1101	Introduction to Psychology	4
or			
SOC	1101	Introduction to Sociology	3
SPCH	1101	Speech	3
Humanities Electives			3
General Education Electives			5 or 6
GSCl	1105	Job Seeking Skills	1
DEN	1100	Oral Radiology I	3
DEN	1105	Oral Radiology II	3
DEN	1110	Dental Science	3
DEN	1115	Dental Health	2
DEN	1120	Chairside Assisting I	2
DEN	1125	Chairside Assisting II	4
DEN	1130	Preclinical Dental Assisting	4
DEN	1135	Dental Practice Management	3
DEN	1140	Dental Materials	3
DEN	1145	Expanded Functions A	3
DEN	1150	Expanded Functions B	3
DEN	1155	Extramural Clinical Experience I	2
DEN	1160	Extramural Clinical Experience II	2
DEN	1165	Extramural Clinical Experience III	2
DEN	1180	Jurisprudence	1
DEN	1185	Nitrous Oxide Inhalation Admin	1
Total Credits			64

Dental Assistant, Diploma**Location: Canby**

ENGL	1101	Composition I	3
SPCH	1101	Speech	3
GSCl	1105	Job Seeking Skills	1
DEN	1100	Oral Radiology I	3
DEN	1105	Oral Radiology II	3
DEN	1110	Dental Science	3
DEN	1115	Dental Health	2
DEN	1120	Chairside Assisting I	2

DEN	1125	Chairside Assisting II	4
DEN	1130	Preclinical Dental Assisting	4
DEN	1135	Dental Practice Management	3
DEN	1140	Dental Materials	3
DEN	1145	Expanded Functions A	3
DEN	1150	Expanded Functions B	3
DEN	1155	Extramural Clinical Experience I	2
DEN	1160	Extramural Clinical Experience II	2
DEN	1165	Extramural Clinical Experience III	2
DEN	1180	Jurisprudence	1
DEN	1185	Nitrous Oxide Inhalation Admin	1
Total Credits			48

Pre-Dental Hygiene Science, A.A.**Location: Worthington**

The pre-dental hygiene program at Minnesota West-Worthington Campus is designed to prepare a student for transfer into a dental hygiene program by fulfilling all of the major academic requirements of lower division dental hygiene programs at transfer universities. This program meets the Minnesota Transfer Curriculum requirements. Students interested in this degree should choose the Liberal Arts major on the application.

BIOL	1110	Principles of Biology	4
BIOL	2270	Microbiology	4
CHEM	1102	Inorganic Chemistry I*	4
CHEM	1102	Inorganic Chemistry II	4
CSCI	1102	Introduction to Microcomputers	3
ENGL	1101	Composition I	3
ENGL	2276	Composition: Technical Writing	3
or			
ENGL	1102	Composition II	3
or			
ENGL	2243	Composition: Creative Writing	3
HLTH	1101	Personal Wellness	3
HLTH	2240	Basic Nutrition	3
MATH	1105	Intro to Probability & Statistics	4
NSCI	1100	Issues in the Environment	3
or			
PSCI	2210	Environmental Politics	3
or			
GEOG	1101	Intro to Physical Geography****	4
PSYC	1101	Introduction to Psychology	4
Humanities electives**			3
Social Science electives***			3
Physical Education Activity			1
SOC	1101	Introduction to Sociology	3
Humanities Electives**			3
Free Electives*****			5
Total Credits			64

* Chemistry requirement varies. See counselor/advisor for appropriate courses.

** Includes literature course for University of Minnesota. See counselor/advisor for appropriate courses.

*** Includes a history course for University of Minnesota. See counselor/advisor for appropriate courses.

**** If either PSCI 2210 or GEOG 1101 is taken the SOC SCI requirement is complete.

***** See counselor/advisor for assistance in choosing appropriate courses to meet transfer institutions. and

MTC requirements. Proficiency in a second language (e.g., Spanish) is highly desired.

Pre-Dental Science, A.S.

Location: Worthington

The pre-dental course is a three-year program (as semester credits) that prepares a student for entrance to a school of dentistry. Two and one-half years of this program may be taken at Minnesota West-Worthington campus. The following program is patterned after the University of Minnesota and would meet the Associate of Science degree requirements. It does not meet the MTC requirements. Students interested in this degree should choose the Liberal Arts major on the application.

ART	1120	Art Appreciation	3
ART	1101	Beginning Drawing	3
		or	
ART	1115	Beginning Painting	3
BIOL	1110	Principles of Biology	4
BIOL	2270	Microbiology*	4
CHEM	1101	General Inorganic Chemistry I	4
CHEM	1102	General Inorganic Chemistry II	4
CHEM	2201	Organic Chemistry I	4
CHEM	2202	Organic Chemistry II	4
CSCI	1102	Introduction to Microcomputers	3
ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
		or	
ENGL	2276	Composition: Technical Writing	3
MATH	1113	Pre-Calculus	4
MATH	1121	Calculus I	4
MATH	1105	Intro to Probability & Statistics	4
MUSC	1105	Enjoying Music	3
PHYS	1201	Fundamentals of Physics I	4
PHYS	1202	Fundamentals of Physics II	4
		Health/Physical Education	1
		Total Credits	64

Third Year

BIOL	2250	Anatomy & Physiology I	4
BIOL	2260	Anatomy & Physiology II	4
PSYC	1101	Introduction to Psychology	4
SPCH	1101	Introduction to Speech	3
		Remaining MTC Requirements	14-18
		Total **	29-33

An additional semester is required to complete the Associate in Arts degree and MTC requirements. Students should take: three credits in HUM; five credits in SOC SCI (PSCI 2210 or GEOG 1101 recommended); two-six credits to meet areas 8, 9, and 10 if requirement is not met through HUM or SOC SCI courses; three credits HLTH 1101; one credit PHED Activity if not previously completed. The total is 14-18 additional credits.

* Depends on transfer institution.

** An overall GPA of 3.25 is highly recommended for an application to be considered as competitive. Additional courses in Biochemistry, Cell Biology and History are required as is volunteer experience in a one-on-one personal service agency. Note: Students are required to complete the DSAT (dental school admissions test) prior to acceptance by dental schools.

Diesel Technology, A.A.S.

Location: Canby

The Diesel Technology program provides individuals with the training needed for maintaining and repairing heavy-duty diesel powered equipment. Coursework emphasizes diesel engines, hydraulics, electrical, air conditioning, and diesel fuel injection systems. The program also prepares students with the technical knowledge needed for repairs, as field services and sales representatives and as managers of diesel service departments.

General Education			18
AUTO	1111	Basic Electrical	4
AUTO	1120	Air Conditioning	2
AUTO	1136	Engines Theory & Lab	5
AUTO	1145	Transportation Computer and Scanners	2
DSL	1120	Powertrain Principles	2
DSL	1125	Powertrain Lab	3
DSL	1130	Hydraulics Theory and Application	3
DSL	1135	Fuel Injection Principles	3
DSL	1150	Internship	4
DSL	2106	Advanced Powertrain Theory	3
DSL	2111	Advanced Powertrain Lab	4
		Technical Electives	17
		Total Credits	70

Diesel Technician, Diploma

Location: Canby

The Diesel Technology program provides individuals with the training needed for maintaining and repairing heavy-duty diesel powered equipment. Coursework emphasizes diesel engines, hydraulics, electrical, air conditioning, and diesel fuel injection systems. The program also prepares students with the technical knowledge needed for repairs, as field services and sales representatives and as managers of diesel service departments.

CSCI	1102	Intro to Microcomputers	3
DSL	1150	Internship	4
DSL	2131	Service Department Operations and Procedures	3
DSL	2136	Fuel Systems Theory	5
DSL	2137	Fuel Lab	5
DSL	2145	Advanced Engines Theory	4
DSL	2150	Advanced Engines Lab	5
DSL	2155	Diesel Engine Control Systems	3
GSSS	1100	Human Relations	2
		Total Credits	34

Diesel Mechanics, Diploma

Location: Canby

AUTO	1111	Basic Electrical	4
AUTO	1120	Air Conditioning	2
AUTO	1136	Engine Theory & Lab	5
AUTO	1145	Transportation Computers and Scanners	2
DSL	1120	Powertrain Principles	2
DSL	1125	Powertrain Lab	3
DSL	1130	Hydraulics Theory and Application	3
DSL	1135	Fuel Injection Principles	3
DSL	2106	Advanced Powertrain Theory	3

DSL	2111	Advanced Powertrain Lab	4
GSCCL	1105	Job Seeking Skills	1
GSCM	1120	Technical Writing	2
Total Credits			34

Advanced Diesel, Certificate

Location: Canby

CSCI	1102	Intro to Microcomputers	3
DSL	2131	Service Dept. Operations and Procedures	3
DSL	2136	Fuel Systems Theory	5
DSL	2137	Fuel Labs	5
DSL	2145	Advanced Engines Theory	4
DSL	2150	Advanced Engines Lab	5
DSL	2155	Diesel Engine Control Systems	3
Total Credits			28

Basic Diesel, Certificate

Location: Canby

AUTO	1111	Basic Electrical	4
AUTO	1120	Air Conditioning	2
AUTO	1136	Engine Theory and Lab	5
AUTO	1145	Transportation Computers and Scanners	2
DSL	1135	Fuel Injection Principles	3
Total Credits			16

Diesel Powertrain and Hydraulics, Certificate

Location: Canby

GSCCL	1105	Job Seeking Skills	1
DSL	1120	Powertrain Principles	2
DSL	1125	Powertrain Lab	3
DSL	1130	Hydraulics Theory and Application	3
DSL	2106	Advanced Powertrain Theory	3
DSL	2111	Advanced Powertrain Lab	4
DSL	1150	Internship	4
Total Credits			20

Economics , A.A.

Location: Worthington

Economics is an independent area of study. It is, therefore, not listed under the business section. Students planning to major in economics should obtain a catalog from the four-year school to which they intend to transfer and consult with the Worthington counselors to determine their exact program. This program meets the MTC and the Associate in Arts requirements.

BIOL			3-4
BUS	1101	Introduction to Business	4
BUS	2201	Principles of Accounting I	4
BUS	2202	Principles of Accounting II	4
CSCI	1102	Introduction to Microcomputers	3
ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
ECON	2201	Principles of Macroeconomics	3
ECON	2202	Principles of Microeconomics	3
HLTH	1101	Personal Wellness	3
MATH	1105	*Intro to Probability & Statistics	4
MATH	1113	*Pre-Calculus	4
		or	
MATH	1121	*Calculus I	4
NSCI	1100	Issues in the Environment	3

		or	
PSCI	2210	Environmental Politics	3
		or	
GEOG	1101	Physical Geography	4
PSCI	1201	American Government & Politics	3
PSYC	1101	Introduction to Psychology	4
SPCH	1101	Introduction to Speech	3
		Physical Education Elective	1
		Chemistry or Physics Electives	3-4
		Humanities Electives	9
Total Credits			64

* Depends on high school preparation and transfer institution.

Education, Elementary or Special, A.A.

Location: Worthington

One of the best-attended programs at Minnesota West-Worthington campus is elementary education. Minnesota West-Worthington campus provides the first two years of courses for that program and, in addition, a number of supporting courses for those students planning the special education emphasis. Many colleges require a grade of Bin composition as well as a GPA of 2.5 or better in all courses for admission into the Education Department. The program below meets the Associate in Arts degree and MTC requirements for the State University System, but can be adapted to meet the varied needs of other institutions. Students interested in this degree should choose the Liberal Arts major on the application.

ENGL	1101	Composition I	3
BIOL	1100	Survey of Biology	3
		or	
BIOL	1110	Principles of Biology	4*
PHYS	1100	Survey of Physics	3
CHEM	1100	Introduction to Chemistry	4
ART	1120	Art Appreciation	3
		or	
ART	1118	Arts and Crafts	3
HIST	1101	American History I	4
HIST	1102	American History II	4
ENGL	1102	Composition II	3
		or	
ENGL	2243	Composition: Creative Writing	3
		or	
ENGL	2276	Composition: Technical Writing	3
HLTH	1101	Personal Wellness	3
HLTH	2220	Drugs, Society & the Individual	3
HLTH	1117	CPR for the Professional Rescuer & Community First Aid	1-3
		or	
HLTH	1120	Comprehensive CPR & other First Aid	1-3
PSYC	1101	Introduction to Psychology	4
		and	
PSYC	1150	Developmental Psychology	3
		or	
PSYC	1140	Child & Adolescent Psychology	3
HIST	1105	Minnesota History	3
GEOG	1100	Physical Geography	3
MUSC	1101	Fundamentals of Music	3
SPCH	1101	Introduction to Speech	3
CSCI	1102	Introduction to Microcomputers	3
		MATH	3
SOC	1101	Introduction to Sociology	3

NSCI	1100	Issues in the Environment	3
		or	
PSCI	2210	Environmental Politics	3
		or	
GEOG	1101	Intro to Physical Geography	4
THTR	2210	Oral Interpretation	3
		or	
		Humanities Elective*	3
PSCI	1201	American Government & Politics	3
		or	
PSCI	2202	State & Local Government	3
		Physical Education Activity	1

* Depends on transfer institution.

The State of Minnesota Board of Licensure is currently redefining the professional and pre-professional requirements for education majors. Consult your counselor/ advisor for current information.

Note: The PPST exam is required before students can enroll in education courses at the junior level. See Student Services for more information and a test application.

Education Paraprofessional, Certificate

Location: Online

This certificate program prepares graduates for employment in a K-12 school district and provides a curriculum which meets the core competencies. The curriculum will provide a career pathway for paraprofessionals which will allow them to begin, continue, and enhance their education. The curriculum is organized to move the learner through the selected course work online and through the A.S. Degree without unnecessary duplication of course work. The certificate is made up of four required and five elective online classes developed by incorporating the core competencies that have been produced for paraprofessionals by the Institute on Community Integration at the University of Minnesota. The course work is designed to begin students with a 12-credit certificate which is part of the Child Development Track of the Human Services degree.

HSER	1132	Behavior Management	2
HSER	1266	Foundations of Child Develop	2
HSER	1267	Special Needs of Young Child	2
HSER	1269	Guidance: Managing the Physical and Social Environments	2

Electives (4 credits) from the following suggested courses:

CDEV	1240	Family and Community Relations	3
CSCI	1102	Introduction to Microcomputers	3
HSER	1121	American Sign Language	3
HSER	1131	Autism	1
HSER	1268	Health Nutrition and Safety	2

Electric Utility Technology, A.A.S.

Location: Jackson

Curriculum includes extensive hands-on practice and theory in single and three phase metering, overcurrent and complex relaying, single-and-three phase transformers, regulators, capacitors, generation, transmission, distribution and many other subjects. Career opportunities include: installing and calibrating electrical watt-hour meters, planning and working in electrical substations, testing and installing high voltage and high current relays used in transmission

and distribution lines, electrical dispatcher, or a power plant maintenance technician.

ELUT	1101	Electrical and Rigging Safety	2
ELCO	1100	Electric Circuit Fundamentals	3
ELCO	1105	Electric Circuit Fundamentals Lab	3
ELUT	1105	Blueprint, Schematics and Transit	3
ELPL	1140	Construction of Underground Powerlines	2
ELUT	1110	Transformer Banking I	3
ELUT	1115	Generation, Transmission, Dist.	3
ELUT	1120	Specifications, Testing and Maintenance	2
ELEC	2205	Electric Motor Control I	4
ELUT	2121	Protective Relays I	3
ELUT	2116	Reclosures & Protective Equipment	3
ELUT	2110	Transformer Banking II	3
ELEC	2230	Programmable Logic Controllers	4
ELUT	2100	Metering I	2
ELUT	2105	Metering II	2
ELUT	2126	Regulators and Capacitors	3
		Technical Electives	3

General Education (16 credits) as follows:

ENGL	1101	Composition I	3
MATH	1111	College Algebra or higher	3
		Humanities Electives from the following:	3

Art, Foreign Language, Literature, Music, Philosophy, Theatre, Western Civilization

Technical Electives (3 Cr) suggested from:

ADSA	1100	College Keyboarding I	3
ADSA	1122	Word Processing I	2
ADSA	1190	Presentation Graphics	2
AUTO	1195	Commercial Drivers	2
ELEC	1130	Electric Motor Theory	3
ELUT	2135	Enrichment I	2
ELUT	2140	Enrichment II	2
HVAC	1100	Refrigeration Fundamentals	3
		General Education Electives from:	7
		English, Biology, Chemistry, Philosophy,	
		Theatre, Western Civilization, Economics, Geography,	
		History, Political Science, Psychology, and Sociology	

Total Credits 64

Electric Utility Technician, Diploma

Location: Jackson

General Education and/or GSCL1105 Job Seeking Skills, GSCM1120 Technical Writing , GSSS1100 Human Relations

ELCO	1100	Electric Circuit Fundamentals	3
ELCO	1105	Electric Circuit Fundamentals Lab	3
ELEC	1235	Electrical Calculations	2
		or	
MATH	1100	or higher	
ELEC	2205	Electric Motor Controls I	4
ELEC	2230	Programmable Logic Controllers	4
ELPL	1140	Construction of Underground Powerlines	2
ELUT	1101	Electrical and Rigging Safety	2
ELUT	1105	Blueprint, Schematics, and Transit	3
ELUT	1110	Transformer Banking I	3
ELUT	1115	Generation, Transmission and Distribution	3
ELUT	1120	Specifications, Testing and Maintenance	2
ELUT	2100	Metering I	2

ELUT	2105	Metering II	2
ELUT	2110	Transformer Banking II	3
ELUT	2116	Reclosures and Protective Equipment	3
ELUT	2121	Protective Relays	3
ELUT	2126	Regulators and Capacitors	3
		Electives	7
		Total Credits	64

Electrician, A.A.S.

Locations: Canby and Jackson

The electrician program prepares individuals to apply their knowledge and skills to install, operate, maintain, and repair electrical apparatus and systems such as residential, commercial, and industrial electric - power wiring; and D.C. and A.C. motors, controls, and electrical distribution panels. Also, included is instruction in the use of test equipment.

General Education requirements 21

These must be selected from 3 of the 10 goal areas of the Minnesota Transfer Curriculum (see page 5)

ELCO	1100	Electrical Circuits Fundamentals and	3
ELCO	1105	Electrical Circuits Fund. Lab or	3
ELCO	1101	DC Circuits and	3
ELCO	1106	AC Circuits	3
ELEC	1200	Residential Wiring I	5
ELEC	1205	National Electric Code I	2
ELEC	1210	Residential & Farm Wiring	5
ELEC	1215	National Electric Code II	2
ELEC	1220	Conduit Installation	4
ELEC	1225	Electric Motors	4
ELEC	1230	Safety Principles and OSHA	1
ELEC	1235	Applied Electrical Calculations	2
ELEC	1240	Commercial Wiring or	5
HVAC	1145	Basic Electronics	2
ELEC	2200	Low Voltage or	3
ELTL	1108	Structured Communications Syst.	3
ELEC	2205	Electric Motor Controls I	4
ELEC	2210	National Electrical Code III	2
ELEC	2220	Industrial Wiring	2
ELEC	2225	Electric Motor Controls II	4
ELEC	2230	Programmable Logic Controllers	4
ELEC	2235	National Electric Code IV	2
ELUT	1110	Transformer Banking I	3
HLTH	1115	Community CPR/First Aide	1
HVAC	1100	Refrigeration Fundamentals or	3
ELEC	2260	Basic Refrigeration	3
HVAC	1140	Heating Fundamentals/ Hydronics/Heat Pumps or	3
HVAC	1150	Heating Systems or	3
ELEC	2250	Heating and Air Conditioning Controls	3
		Total Credits	88

Electrician, Diploma

Locations: Canby and Jackson

ELCO	1100	Electrical Circuits Fundamentals and	3
ELCO	1105	Electrical Circuits Fund. Lab or	3
ELCO	1101	DC Circuits and	3
ELCO	1106	AC Circuits	3
ELEC	1200	Residential Wiring I	5
ELEC	1205	National Electric Code I	2
ELEC	1210	Residential & Farm Wiring	5
ELEC	1215	National Electric Code II	2
ELEC	1220	Conduit Installation	4
ELEC	1225	Electric Motors	4
ELEC	1230	Safety Principles and OSHA	1
ELEC	1235	Applied Electrical Calculations	2
ELEC	1240	Commercial Wiring or	5
HVAC	1145	Basic Electronics	2
ELEC	2200	Low Voltage or	3
ELTL	1108	Structured Communications Syst.	3
ELEC	2205	Electric Motor Controls I	4
ELEC	2210	National Electrical Code III	2
ELEC	2220	Industrial Wiring	2
ELEC	2225	Electric Motor Controls II	4
ELEC	2230	Programmable Logic Controllers	4
ELEC	2235	National Electric Code IV	2
ELUT	1110	Transformer Banking I	3
HLTH	1115	Community CPR/First Aide	1
HVAC	1100	Refrigeration Fundamentals or	3
ELEC	2260	Basic Refrigeration	3
HVAC	1140	Heating Fundamentals/ Hydronics/Heat Pumps or	3
HVAC	1150	Heating Systems	3

General Education or Related of 11 credits would include the following courses:
 GSSS 1100 Human Relations, GSCL 1105 Job Seeking Skills, GSCM 1120 Technical Writing or
 English, Biology, Chemistry, Math above 1000 level, Physics, Natural Science, Art, Foreign Language, Literature, Music, Philosophy, Theatre, Western Civilization, Economics, Geography, History, Political Science, Psychology, and Sociology
 Note: ELCO 1101 and ELCO 1106 can be taken Fall Semester instead of ELCO 1100 and ELCO 1105
 Note: HVAC 1150 may be taken instead of HVAC 1140

Total Credits 78

Emergency Medical Services, Certificate

Location: Jackson and Marshall Center Site

An instructional program that prepares individuals to perform initial medical diagnosis, treatment, and comprehensive care in medical crises, under the general supervision of a coordinating physician. Includes instruction in all aspects of basic health care; disease, disorder, and injury symptomatology and diagnosis; emergency medical treatment procedures for various injuries and disease outbreaks; basic

pharmacology; anesthetics; intravenous and other drug administration procedures; obstetrics procedures; basic surgical techniques; emergency medical equipment operation and maintenance; special care of patients exposed to heat, cold, radiation, or contagious disease; and administrative aspects of emergency medicine. Programs may include emergency vehicle operation and patient transportation procedures, depending on level of training.

EMS	1101	Introduction to EMT Basic	2
EMS	1102	EMT Basic Completion Course	4
EMS	1108	Basic Trauma Life Support	2
EMS	1109	Advanced Cardiac Life Support	1
EMS	1110	Ambulance Operation/Maint.	2
HC	1165	Medical Terminology	1
HC	1110	Anatomy/Physiology	2
		Recommended Elective	1
		Total Credits	16

Engineering (pre-engineering), A.S.

Location: Worthington

Engineering programs prepare graduates to do research and to design and develop new technologies and devices. Engineering technology programs prepare graduates to apply engineering knowledge and methods along with technical skills. Engineering technologists often translate and apply engineering research in real world applications. The engineering program at Minnesota West-Worthington campus is designed to fulfill the major requirements of lower division engineering programs at transfer universities. This program meets the Associate of Science requirements but does not meet the Minnesota Transfer Curriculum.

For most fields of engineering, the first two years of the program provide students with a needed foundation in math and science. In addition, students begin fulfilling general education requirements for graduation. Actual specialization in such fields as computer, agricultural, aeronautical, chemical, civil, geological, material processing, electrical, mechanical and industrial engineering generally begins in the junior year. In an effort to meet the needs of each student, Minnesota West-Worthington campus offers three engineering tracks, each allowing graduates to transfer as juniors.

CADS	1121	Technical Drafting (auto CAD)	3
CHEM	1101	General Inorganic Chemistry I	4
CSCI	2235	C++ Programming	3
ECON	2201	Principles of Macroeconomics	3
ENGL	1101	Composition I	3
ENGL	2276	Technical Writing	3
ENGR	1101	Intro Engineering	1
ENGR	2215	Engineering Mechanics-Dynamics	3
GEOG	1100	Intro to Geography	3
HIST	1111	Western Civilization	3
MATH	1121	Calculus I	4
MATH	1122	Calculus II	4
MATH	2201	Calculus III	4
MATH	2203	Differential Equations	3
PHED	1130	Fitness for Life	1
PHIL	2201	Introduction to Ethical Theory	1
PHIL	2205	Business Ethics	2

PHYS	2121	General Physics and Laboratory	5
PHYS	2122	General Physics II and Lab	5
PHYS	2235	Statics	3
SPCH	1101	Fundamentals of Speech and Lab	3
		Total Credits	64

Environmental Sciences, A.A.

Location: Worthington

The study of the environment combines knowledge of biological, chemical and physical principles with the broad background of the liberal arts. Students will find a variety of fields in which to specialize at the BA/BS level. At Minnesota West-Worthington campus, students should concentrate on completing the MTC and a broad science/math background. Students interested in this degree should choose the Liberal Arts major on the application.

BIOL	1110	Principles of Biology	4
ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
CHEM	1101	General Inorganic Chemistry I	4
CHEM	1102	General Inorganic Chemistry II	4
CSCI	1102	Introduction to Microcomputers	3
MATH	1111	College Algebra	3
NSCI	1100	Issues in the Environment	3
PSCI	1201	American Government & Politics	or
PSCI	2202	State and Local Government	or
PSCI	2210	**Environmental Politics	3-9
SPCH	1101	Introduction to Speech	3
		Physical Activity	1
		Humanities Electives	9
		Social Services Electives	6

Courses to fulfill remaining MTC/AA Degree 0-6

HLTH	1101	Personal Wellness	3
AGRI	1103	Introduction to Soil Science	3
AGRI	2204	Introduction to GPS/GIS	3
		Electives	2
		Total Credits	64

Fluid Power Technology, A.A.S.

Location: Granite Falls

Fluid power is the technology of generating, controlling, and applying smooth, effective power of pumped or compressed fluid, either a liquid (hydraulics) or air (pneumatics) to push, pull, rotate, regulate, or drive virtually all of the mechanisms of modern industry. Fluid Power Technicians perform such tasks as: Designing fluid power systems, installing fluid, power systems and components, such as pumps, motors, compressors, valves, cylinders, and accessories. Troubleshooting and maintaining fluid power systems on such equipment as industrial machines, construction and agricultural machines, airplanes, ships, over-the-road vehicles and material handling devices. Testing and manufacturing fluid power systems and components. Conducting research on new concepts, applications, and improvements of fluid power systems. Manufacturing components and systems. Marketing and selling fluid power systems, working closely with customers of fluid power manufacturers and distributors.

General Education Credits		18
FLPW 1100	Hydraulic Theory	4
FLPW 1105	Fluid Power Hydraulic Lab	3
FLPW 1110	Fluid Power Calculations	2
FLPW 1115	Hydraulic Schematic Circuitry	2
FLPW 1120	Fluid Power Pneumatics and Accessories Theory	3
FLPW 1131	Fluid Power Lab II	3
FLPW 2100	Advanced Systems Calculations	3
FLPW 2105	Advanced system Lab I	4
FLPW 2110	Circuit Design and Control Theory	3
FLPW 2116	Corporate Networking and Sales	3
FLPW 2126	Systems Analysis	4
FLPW 2130	Advanced Systems Lab II	4
FLPW 2136	Programmable Logic Controls	3
FLPW 2141	Proportional and Servo Control Theory	2
FLPW 2142	Proportional and Servo Control Lab I	1
FLPW 2170	Second Year Technical Projects	2
ROBT 1107	Electrical Theory I/Lab	3
ROBT 1122	Electrical Theory II	2
ROBT 1135	Electromechanical Theory	2
	Technical Elective	1
	Total Credits	72

Fluid Power Technology, Diploma

Location: Granite Falls

Fluid power is the technology of generating, controlling, and applying smooth, effective power of pumped or compressed fluid, either a liquid (hydraulics) or air (pneumatics) to push, pull, rotate, regulate, or drive virtually all of the mechanisms of modern industry.

Fluid Power Technicians perform such tasks as:
 Designing fluid power systems. Installing fluid power systems and components, such as pumps, motors, compressors, valves, cylinders, and accessories.
 Troubleshooting and maintaining fluid power systems on such equipment as industrial machines, construction and agricultural machines, airplanes, ships, over-the-road vehicles and material handling devices. Testing and manufacturing fluid power systems and components. Conducting research on new concepts, applications, and improvements of fluid power systems. Manufacturing components and systems. Marketing and selling fluid power systems, working closely with customers of fluid power manufacturers and distributors.

General Education Credits		10
FLPW 1100	Hydraulic Theory	4
FLPW 1105	Fluid Power Hydraulic Lab	3
FLPW 1110	Fluid Power Calculations	2
FLPW 1115	Hydraulic Schematic Circuitry	2
FLPW 1120	Fluid Power Pneumatics and Accessories Theory	3
FLPW 1131	Fluid Power Lab II	3
	Technical Electives	4
FLPW 2100	Advanced Systems Calculations	3
FLPW 2105	Advanced System Lab I	4
FLPW 2110	Circuit Design and Control Theory	3
FLPW 2116	Corporate Networking and Sales	3
FLPW 2126	Systems Analysis	4
FLPW 2130	Advanced Systems Lab II	4
FLPW 2136	Programmable Logic Controls	3

FLPW 2141	Proportional and Servo Control Theory	2
FLPW 2142	Proportional and Servo Control Lab I	1
FLPW 2170	Second Year Technical Project	2
ROBT 1107	Electrical Theory I/Lab	3
ROBT 1122	Electrical Theory II	2
ROBT 1135	Electromechanical Theory	2
	Total Credits	67

Food Science, A.S.

Location: Worthington

Food Science degrees are limited almost exclusively to land grant universities although some state universities do have Food Science Technology majors. The Associate of Science degree listed below would prepare students to complete the first two years of a bachelor's degree in a science option of a Food Science Degree program. The degree requirements listed below are based primarily on the requirements of the University of Minnesota and Minnesota State University, Mankato. The degree requirements for schools in Wisconsin (U of W-River Falls), North Dakota (NDSU), South Dakota (SDSU) and Iowa (Iowa State University) are very similar in the areas of communications and math/science. Calculus and Organic Chemistry requirements may vary, as well as social science, humanities, and physical education. This does not meet the MTC requirements. Students planning to attend the University of Minnesota are advised to complete the Associate in Arts degree and the MTC. Students interested in this degree should choose the Liberal Arts major on the application.

BIOL 1110	Principles of Biology	4
BIOL 2250	Anatomy & Physiology I	4
BIOL 2260	Anatomy & Physiology II	4
BIOL 2270	Microbiology	4
CHEM 1101	General Inorganic Chemistry I	4
CHEM 1102	General Inorganic Chemistry II	4
CHEM 2201	Chemistry I	5
CHEM 2202	Chemistry II	5
CSCI 1102	Introduction to Microcomputers	3
ENGL 1101	Composition I	3
ENGL 1102	Composition II	3
HLTH 2240	**Basic Nutrition	3

Choose two of the following:

MATH 1111	College Algebra	3
MATH 1113	Pre-Calculus	4
MATH 1121	*Calculus	4
PHYS 1201	Fundamentals of Physics I	4
PHYS 1202	**Fundamentals of Physics II	4
PSYC 1101	Introduction to Psychology	4
SPCH 1101	Introduction to Speech Health/Physical Education	3
	Humanities Electives***	1
	Total Credits	64

* Depends on high school preparation

** Depends on transfer institution

*** Minimums only BIOL 2250 and 2260 are required at Minnesota State University, Mankato MATH 1121 and 1122 are required at the University of Minnesota
 An additional semester is required to complete the AA degree and MTC requirements. Students should take

the following courses: five credits in SOC SCI; five credits in HUM; PSCI 2210, GEOG 1101 and ECON 2202 are strongly recommended ; PHIL 2201 AND 2202, and HIST 1111 are strongly recommended; HLTH 1100 for three credits and PHED Activity for one credit (if not previously taken); two-six credits to meet Areas 8,9,10 if not met by HUM and SOC SCI requirements. This will total 13-20 additional credits.

Forestry/Natural Resources, A.S.

Location: Worthington

Four-year college graduates in the field of forestry are responsible for the management of approximately one-third of the land area of the United States. The educational program in the School of Natural Resources (University of Minnesota) prepares the student in forest resource development and forest science curricula in the art, science and business of managing forest lands for all their products (timber, water, wildlife, grazing, and recreation). Forest products, forest engineering and forest marketing graduates are directly involved in the harvesting, processing, distribution and marketing of forest products in the nation. The recreation resource management curriculum specializes in manufactured housing, marketing, pulp and paper, wood science and technology as well as the management and marketing of recreation areas.

The College of Natural Resources at the University of Minnesota has many options or areas of specialization within the broad area of forestry. All of these programs require a broad science background and the following is only one possible two-year course of study. Upon completion of this program, the student earns the AS degree. This course outline does not meet MTC requirements. Students interested in this degree should choose the Liberal Arts major on the application.

AGRI	1103	Introduction to Soil Science	3
BIOL	1110	Principles of Biology	4
BIOL	2220	Animal Biology	4
BIOL	2230	Plant Biology	4
CHEM	1101	General Inorganic Chemistry I	4
CHEM	1102	General Inorganic Chemistry II	4
CHEM	2201	Organic Chemistry I	5
CSCI	1102	Introduction to Microcomputers	3
ECON	2201	Principles of Macroeconomics	3
ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
MATH	1105	*Intro to Probability& Statistics	4
MATH	1121	****Calculus I	4
PHYS	1201	Fundamentals of Physics I	4
PHYS	1202	Fundamentals of Physics II	4
		Social Science Electives***	3
		Health/Physical Educ Electives	1
		Humanities Electives***	3
SPCH	1101	Introduction to Speech	3
		Total Credits	64

* Required for forest resources and forest science majors for the Itasca Biological Sciences Program

** Depends on the area of specialization

*** Minimums only.

**** Depends on the high school preparation

An additional semester is required to complete the A.A. degree and MTC requirements. Students should take

six credits in HUM; two-six credits in SOC SCI (PSCI 2210 recommended); three credits in HLTH 1100; one credit of PHED Activity (if not previously completed); two-six credits to meet areas 7,8 and 9 of MTC if not complete as part of HUM/SOC SCI requirements. This will total 10-20 additional credits.

Healthcare Supervision & Leadership, Certificate

Location: Online

This Internet-based certificate will provide the opportunity for the incumbent frontline leaders and supervisors/workers from all departments of healthcare facilities to pursue advanced training in the areas of Employment, Customer Services, Personnel Supervision, Leadership, Legal Compliance, Finance, Industry Trends and Marketing as these topics relate to the healthcare environment. The Internet platform will allow healthcare personnel to pursue advanced training without leaving their facility or placing undue hardships on their current positions and/or employment status. The curriculum will provide for independent practice and virtual role-playing, and the student will be able to interact with college instructional staff via email.

SBMT	1400	Employment	2
SBMT	1405	Customer Service	2
SBMT	1410	Personnel Supervision	4
SBMT	1415	Leadership	4
SBMT	1420	Corporate Compliance	2
SBMT	1425	Finance for Healthcare	3
SBMT	1430	Healthcare Industry Trends	1
SBMT	1435	Marketing in Healthcare	1
		Total Credits	19

Management and Supervision in Healthcare, A.S.

Location: Online

The Management and Supervision in Healthcare A.S. program is designed to provide students with the education needed to enhance their management skills. This Internet based A.S. program will provide the opportunity for healthcare workers to gain advanced training in pursuing a management position in healthcare. Frontline leaders within healthcare facilities can also pursue advancement in their assigned areas. The Internet platform allows students to continue their education without leaving their facility and without placing undue hardships on their current positions and/or employment status. The curriculum will provide for independent practice and virtual role playing, and the student will be able to interact with college instruction staff via email and discussion groups. Students will have the option upon completing the A.S. degree to transfer to a university to complete a four-year degree.

1. To earn an A.S. degree students must complete the following requirements:
2. Successful completion of 64 semester credits of which at least 20 must be earned at Minnesota West Community & Technical College.
3. A grade point average of 2.00 ("C") or better.

4. A minimum of 30 credits selected from at least 6 of the 10 goal areas in the Minnesota Transfer Curriculum. (see page 5)

Students can ensure seamless transfer of course work at a receiving institution by contacting the institution of transfer for information relating to advanced course work or test out procedure.

Required Core:

SBMT	1310	Resolving Conflict	1
SBMT	1315	Principles of Supervisory Leadership	3
SBMT	1325	Problem Solving & Decision Making	2
SBMT	1330	Interpersonal Skills for Supervisors	1
SBMT	1335	Work Teams	1
SBMT	1345	Finance & Accounting for Non-Financial Managers	3
SBMT	1400	Employment	2
SBMT	1405	Customer Service	2
SBMT	1410	Personnel Supervision	4
SBMT	1415	Leadership	4
SBMT	1420	Corporate Compliance	2
SBMT	1425	Finance for Healthcare	3
SBMT	1430	Healthcare Industry Trends	1
SBMT	1435	Marketing in Healthcare	1

Also Required:

CSCI	1102	Introduction to Microcomputers	3
		Physical Education/Health-minimum of one course	1
		General Education Requirements	30
		Total Credits	64

Heating, Ventilation, Air Conditioning/ Refrigeration (HVAC/R), A.A.S.

Location: Pipestone

The Heating, Ventilation, Air Conditioning/Refrigeration (HVAC/R) program offers training in current technology for diagnosing, servicing, repairing, installing, and managing heating and cooling energy systems. Students are trained to diagnose and repair malfunctions: size, fabricate and install a duct air system; and estimate cooling and heating loads for selection of the most efficient systems. Introductory courses in electricity, electric motors, and theory of refrigeration are included with advanced work in the commercial area. Other areas of study include uses of air conditioning, temperature and humidity control, air circulation, cleaning, and installation of equipment.

ENGL	1101	Composition I	3
NSCI	1110	Issues in the Environment	3
PSYC	1101	Introduction to Psychology	4
SPCH	1101	Speech	3
		Humanities Elective	3
		General Education Electives	4
ELCO	1100	Electrical Circuits Fundamentals	3
HVAC	1100	Refrigeration Fundamentals	3
HVAC	1110	Refrigeration Controls & Comp.	3
HVAC	1120	Domestic Refrigeration	3
HVAC	1130	Air Conditioning	3
HVAC	1135	Commercial Refrigeration	4

HVAC	1140	Heating Fundamentals/ Hydronics/ Heat Pumps	3
HVAC	1145	Basic Electronics	2
HVAC	1150	Heating Systems	3
HVAC	1155	Sheetmetal Technology	3
HVAC	1160	Blue Print Reading	2
		Electives	12
		Total Credits	64

Heating, Ventilation and Air Conditioning/ Refrigeration (HVAC/R), Diploma

Location: Pipestone

General Education and/or GSCL1105 Job Seeking Skills, GSCM1120 Technical Writing, GSSS1100 Human Relations

ELCO	1100	Electrical Circuits Fundamentals	3
HVAC	1100	Refrigeration Fundamentals	3
HVAC	1110	Refrig. Controls & Components	3
HVAC	1120	Domestic Refrigeration	3
HVAC	1130	Air Conditioning	3
HVAC	1135	Commercial Refrigeration	4
HVAC	1140	Heating Fundamentals/ Hydronics/ Heat Pumps	3
HVAC	1145	Basic Electronics	2
HVAC	1150	Heating Systems	3
HVAC	1155	Sheetmetal Technology	3
HVAC	1160	Blue Print Reading	2
		Electives	7
		Total Credits	43

Heating, Ventilation and Air Conditioning/ Refrigeration (HVAC/R), Certificate

Location: Pipestone

HVAC	1100	Refrigeration Fundamentals	3
HVAC	1110	Refrig Controls & Components	3
HVAC	1120	Domestic Refrigeration	3
HVAC	1130	Air Conditioning	3
HVAC	1140	Heating Fundamentals/ Hydronics/ Heat Pumps	3
HVAC	1150	Heating Systems	3
HVAC	1155	Sheetmetal Technology	3
HVAC	1160	Blueprint Reading	2
ELCO	1100	Circuit Fundamentals	3
		Total Credits	26

Home Economics (Human Ecology), A.A.

Location: Worthington

There are many programs available in the field of home economics: costume design, dietetics, fashion merchandising, food service, home management, textiles and clothing, foods in business, community nutrition, etc. Each has different requirements. Because of this diversity, it would be misleading to list absolute requirements for all home economics programs. At Worthington, it is possible to take at least one, and more often, two years of courses required for any of the home economics programs. Be sure to check with the counseling office to ensure that you are getting the appropriate courses for your major and transfer institution.

You are strongly encouraged to earn the Associate in Arts degree and meet the MTC requirement if attending the U of MN or a state university. The two-year

program outlined below meets these requirements. Students interested in this degree should choose the Liberal Arts major on the application.

ART	1120	Art Appreciation	3
		or	
MUSC	1105	Enjoying Music	3
		or	
THTR	1101	Introduction to Theater	3
BIOL	1110	Principle of Biology	4
CHEM	1101	Inorganic Chemistry I	4
CHEM	1102	Inorganic Chemistry II	4
CHEM	2201	*Organic Chemistry I	5
CHEM	2202	*Organic Chemistry II	5
CSCI	1102	Introduction to Computer Science	3
ECON	2201	Principles of Macroeconomics	3
ECON	2202	Principles of Microeconomics	3
		Physical Education Activity	1
ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
		or	
ENGL	2276	Composition: Technical Writing	3
		or	
ENGL	2243	Composition: Creative Writing	3
HLTH	1110	Dimensions of Community/ Public Health	3
HLTH	1101	Personal Wellness	3
MATH	1111	College Algebra	3
MATH	1113	**Pre-Calculus	4
NSCI	1100	Issues in the Environment	3
		or	
GEOG	1101	Intro to Physical Geography	4
PHIL	2201	Introduction to Ethical Theory	1
PHIL	2202	General Applied Ethics	1
PHYS	1201	Fundamentals of Physics I	4
PHYS	1202	Fundamentals of Physics II	4
PSYC	1101	Introduction to Psychology	4
SOC	1101	Introduction to Sociology	3
		or	
SOC	1102	Social Problems	3
		or	
SOC	2210	Marriage and the Family	3
		or	
SOC	2220	Family Life Dynamics	3
SPCH	1101	Introduction to Speech	3
		or	
PSCI	2210	Environmental Politics	3
		Humanities Electives	4
		Total Credits	64

* Depends on transfer institution and area of specialization

** Depend on high school preparation

Human Services, A.S.

Location: Worthington

The Human Services Program is designed for students interested in the helping professions. Academic and skills-oriented classes, agency visits, and supervised work experiences prepare students for employment in a variety of settings, or for continuing their education in four-year colleges. Human Services majors may choose one of two tracks:

1. Students selecting the Generalist track design their programs of study according to their areas of interest. While taking a core of foundation courses,

students prepare for entry-level work or for later specialization in fields such as social welfare, special education, disabilities, family services or counseling.

2. Students in the Child Development track prepare to work with young children in their own homes; in day care centers, preschools, or other specialized settings; or for future careers in education, child development and related fields. Courses and internship experiences are designed to help students work toward earning credentials as a child care professional.

Qualifications: To be admitted to internships, students must have an overall GPA of 2.00 ("C"), a 2.50 in career courses and be approved following an interview by the Human Services Committee.

Students are awarded an A.S. degree in Human Services upon successful completion of the following requirements.

1. Successful completion of 64 semester credits of which at least 20 must be earned at Minnesota West Community & Technical College.
2. A grade point average of 2.00 ("C") or better.
3. A minimum of 30 credits from four general education categories listed in below
 - A. Communications - Minimum of 9 credits
 - a. ENGL 1101, ENGL 1102 or ENGL 2276 - choose one
 - b. SPCH 1101 - required
 - B. Four or more credits from each of the following areas to total 21:
 - a. Science/Math
 1. BIOL 1100 or BIOL 1110
 2. *Recommended: PHIL 1200
 - b. Behavioral/Social Science
 1. PSYC 1101
 2. SOC 2210 or 2220
 - c. Humanities
 1. PHIL 2201
 2. *Recommended: Spanish
4. Career Courses: A minimum of 30 credits, including those listed in the table below.
 - A. Physical Education/Health
 - HLTH 1115 or HLTH 1116 or HLTH 1117 or HLTH 1120
 - B. Physical Education - a minimum of one course
 - CSCI 1102 - Introduction to Microcomputers, 3 credits, required

Generalist Track

HSER	1101	Introduction to Human Services	2
HSER	2297	Human Services Generalist Internship	6 or 8
PHIL	2223	Ethics for HSER workers	1
PSYC	1111	Psychology of Adjustment	3
PSYC	2210	Basic Counseling Skills	3
PSYC	2230	Behavior Modification	3

One course from the following:

PSYC 1140	Child and Adolescent Psychology	3
PSYC 1141	Psychology of Adulthood & Aging	2
PSYC 1150	Developmental Psychology	3

and electives chosen with written approval by Human Services coordinator and sufficient to total 64 credits:

*Recommended:

PSYC 2225	Addictive Behaviors	3
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Child Development Track:

HSER 1101	Introduction to Human Services	2
HSER 2298	Human Services - Child Development Internship	6 or 8
HSER 1262	Creative Activities for Young Children	2
HSER 1266	Foundations of Child Development	2
HSER 1267	Special Needs of Young Children	2
HSER 1268	Child Health, Nutrition & Safety	2
HSER 1269	Comm & Guidance: Techniques for Young Child	2
PHIL 2223	Ethics for HSER Workers	1
PSYC 1111	Psychology of Adjustment	3
PSYC 1140	Child and Adolescent Psych.	3
PSYC 2230	Behavior Modification	3

and electives chosen with written approval by Human Services coordinator and sufficient to total 64 credits.

Total Credits 64

Law (pre-law), A.A.

Location: Worthington

Law schools in Minnesota do not require specific undergraduate major or courses as pre-law preparation. Rather, they recommend that students acquire a broad education such as is usually assured in a liberal arts program. Special emphasis is placed on the development of skills in oral and written expression. Pre-law students should choose a major and plan a program which is as broad as possible while still being consistent with degree requirements. The student is ultimately responsible of registering in courses that fulfill degree and transfer requirements. Professional advisement is available to the student while he/she pursues his/her course work. Many pre-law students major in history, political science and business administration, though other departmental majors provide good background for law study. Most law schools emphasize that students present a major demonstrating depth of knowledge of the particular field, accompanied by a wide variety of electives that meet the MTC requirements. The program outlined below meets the AA degree and MTC requirements. It is recommended that a pre-law student pursue a course of study leading to the Associate in Arts degree and that whatever the intended major, it include the following courses:

Students interested in this degree should choose the Liberal Arts major on the application.

ENGL 1101	Composition I	3
ENGL 1102	Composition II	3
CSCI 1102	Introduction to Computers	3
HIST 1101	American History I	4

HIST 1102	American History II	4
HLTH 1101	Personal Wellness	3
	Chemistry/Physic Electives	3-4
PSCI 1101	Introduction to Political Science	3
PSCI 1201	American Government and Politics	3
PSCI 2202	State and local Government	3
	Math/Logic Electives	3-5
	Humanities Electives*	9
	Physical Education Activity	1

Choose one of the following: 3-4

NSCI 1100	Issues in the Environment	3
GEOG 1101	Physical Geography	4

PSCI 2210	Environmental Politics	3
SPCH 1101	Introduction to Speech	3
	Free Electives***	6-10
	Biology Electives	3-4
	Social Science Electives**	3
	Total Credits	64

* THTR 2210, HIST 1111 AND 1112, PHIL 2201 AND 2202 and proficiency in a second language are strongly recommended.

** SOC courses, PSYC 1101, 1150, 2221, ECON 2201, 2202, are strongly recommended.

***BUS 2201, 2202 and courses from HUM and SOC SCI areas listed above as well as foreign languages are strongly recommended.

Law Enforcement, A.S.

Location: Worthington

The Law Enforcement program is designed with a set of core courses, which have been designed to be flexible and to assist students in preparing for a variety of careers in Law Enforcement. The Law Enforcement program being offered at Minnesota West will provide persons in southwest Minnesota the opportunity to complete a quality peace officer training program without having to leave the area. The curriculum has been designed in collaboration with the POST learning objectives and is POST Board approved. Students will have the option to pursue certification and begin their career upon completing the Associate degree or transfer to a university to complete a four-year degree. There is an articulation agreement in place with Minnesota State University - Mankato for this major. The curriculum has been designed in collaboration with other programs to meet the "learning objectives" approved by the board and based on the following subject areas:

- A. History and overview of the criminal justice system
- B. Minnesota Statute law
- C. Criminal law and criminal procedures
- D. Juvenile justice system and procedures
- E. Patrol procedures
- F. Criminal investigation and testifying
- G. Human behavior and crisis intervention
- H. Defensive tactics and use of force
- I. Cultural awareness and response to crime victims

Program Requirements:

LAWE 1101	Introduction to Criminal Justice	3
LAWE 1110	Criminal Law	3
LAWE 1140	Cyber Crimes	2
LAWE 1150	Homeland Security and Terrorism	2
LAWE 1160	Minnesota Criminal Code	2

LAWE	1170	Minnesota Traffic Code	2
LAWE	2201	Criminal Investigation/ Interview and Interrogation	3
LAWE	2210	Evidence Collection & Preservation	2
LAWE	2223	Applied Writing: Law Enforcement	2
LAWE	2232	Patrol Operations	3
LAWE	2251	Psychology of Law Enforcement	3
LAWE	2290	Civil Service Preparation	1
EMS	1110	First Responder Basic	3

Recommended Program Courses:

LAWE	1100	Law Enforcement Orient/Practicum	1
LAWE	2215	Basic Criminal Forensics	3
LAWE	2294	Community Leadership	1
LAWE	2295	POST Seminar	1
SPAN	1150	Conversational Spanish for Law Enforcement Personnel	1

General Education Requirements:

ENGL	1101	Composition I	3
ENGL	2276	Composition: Technical Writing	3
PHIL	2201	Introduction to Ethical Theory	1
PHIL	2202	General Applied Ethics	1
PSCI	1201	American Government & Politics	3
		or	
PSCI	2202	State and Local Government	3
PSYC	1101	Introduction to Psychology	4
SOC	1101	Introduction to Sociology	3
SOC	2224	Racial & Ethnic Minorities	3
SOC	2230	Juvenile Delinquency	3
SPCH	1101	Introduction to Speech	3

Choose one of the following MATH/SCIENCE courses:

BIOL	1110	Principles of Biology	4
		or	
CHEM	1100	Introduction to Chemistry	4
		or	
MATH	1105	Intro to Probability & Statistics	4
		or	
NSCI	1100	Issues in the Environment	3

Choose one of the following degree options

MN P.O.S.T. Licensure Requirements (A.S. Degree):

CSCI	1102	Introduction to Microcomputers	3
PHED	1114	Physical Agility and Self Defense	2
LAWE	2296	Practicum Skills	12
		Total Credits	64

A.S. Degree Requirements:

CSCI	1102	Introduction to Microcomputers	3
HLTH	2220	Drugs, Society and the Individual	3
		or	
PHED	1114	Physical Agility and Self Defense	2

Law Enforcement - Corrections, A.A.

Location: Worthington

Students planning to pursue the Associate in Arts degree option will attend Minnesota West for two years and upon completion of a liberal arts degree, transfer on to a four year college or university. Students who pursue the Associate in Arts degree do not participate in skills training. This degree option is suitable for

students who are not seeking immediate employment in the law enforcement field.

An Associate in Arts degree will prepare you for employment in the following career fields: FBI, ATF, DEA, or Criminal Justice. This program meets the MTC and the Associate in Arts requirements.

ENGL	1101	Composition I	3
ENGL	2276	Composition: Technical Writing	3
		or	
ENGL	1102	Composition II	3
		or	
ENGL	2243	Composition: Creative Writing	3
SPCH	1101	Introduction to Speech	3
BIOL	1115	Human Biology	3
		or	
BIOL	1110	Principles of Biology	3
		CHEM/PHYS (choose one course)	3-4
		MATH 1105 or higher	
		or	
		PHIL 1200	3-4
SOC	1101	Introduction to Sociology	3
PSYC	1101	Introduction to Psychology	4
PSCI	1201	American Government and Politics	3
		or	
PSCI	2202	State and Local Government	3
PHIL	2201	Introduction to Ethical Theory	1
PHIL	2202	General Applied Ethics	1
		Humanities electives (chosen from 2 different areas)	7
PSYC	1150	Developmental Psychology	3
NSCI	1100	Issues in the Environment	3
HLTH	1101	Personal Wellness	3
CSCI	1102	Introduction to Microcomputers	3
PHED		Any activity course	1

Electives to total 64 credits. Suggested electives include:

EMS	1110	First Responder Basic	3
HLTH	2220	Drugs, Society, and the Individual	3
LAWE	1100	Law Enforcement Orientation/Pract	1
LAWE	1101	Introduction to Criminal Justice	3
LAWE	1110	Criminal Law	3
LAWE	1140	Cyber Crimes	2
LAWE	1150	Homeland Security and Terrorism	2
LAWE	1160	Minnesota Criminal Code	2
LAWE	1170	Minnesota Traffic Code	2
LAWE	2215	Basic Criminal Forensics	3
LAWE	2251	Psychology of Law Enforcement	3
LAWE	2294	Community Leadership	1
SOC	2230	Juvenile Delinquency	3
SPAN	1150	Conversational Spanish of Law Enforcement Personnel	1

Liberal Arts, A.A.

Location: All Campuses and Online

The Liberal Arts Program leads to a Bachelor of Arts or Bachelor of Science degree. The following outline should be used as a guide for students seeking a broad and general foundation in the arts and sciences during the first two years. This program will provide the student an opportunity to test several occupational areas before making a final decision by acquainting him/her with all the basic fields of human knowledge. The program outlined will meet the requirements for the Associate in Arts Degree and Minnesota Transfer

Curriculum. The Associate in Arts degree can be used to fulfill the freshman-sophomore general education requirements at all state universities and most four-year colleges and universities in other states. The degree is the basic graduation award toward which most students will work if they intend to transfer. It emphasizes a broad general education. A year of world Languages may be required at some schools in some majors. In order to obtain an Associate in Arts degree, students must complete the following uniform requirements:

FRESHMAN			
ENGL	1101	Composition	3
BIOL		Biology Lab Course	3-4
		Humanities Electives*	9
		Free Elective	4
CSCI	1102	Introduction to Microcomputers	3
		General Education Electives	7
ENGL	1102	Composition II	
		or	
ENGL	2243	Composition: Creative Writing	3
		or	
ENGL	2276	Composition: Technical Writing	3
		Total Credits for First Year	32-33
SOPHOMORE			
SPCH	1101	Introduction to Speech	3
MATH/PHIL	1200		3-5
		Social Science Electives*	9
CHEM/PHYS			3-5
		Free Electives**	6-10
HLTH	1101	Personal Wellness	3
		Physical Education Activities	1
		Total Credits for Second Year	32
		Total Credits	64

* Students should choose courses that will meet humanities and social sciences requirements as well as the "Themes" of Gender Education; Diversity; Global Perspective; Ethical and Civic Responsibility; and the Environment to maximize their electives.

** Students may select courses in business, agriculture, human services, computer science, health, or physical education.

Machine Tool Technology, A.A.S.

Location: Granite Falls

ENGL	1101	Composition I	3
MATH	1111	College Algebra	3
PSYC	1101	Introduction to Psychology	4
		or	
SOC	1101	Introduction to Sociology	3
		Humanities Elective	3
		General Educ. Electives	7 or 8
GSCL	1105	Job Seeking Skills	1
MACH	1100	Machine Tool Theory I	3
MACH	1105	Machine Tool Lab I	4
MACH	1106	Machine Tool Lab I (part 2)	3
MACH	1110	Blueprint Reading & Sketching	2
MACH	1115	Machine Tool Lab II	3

MACH	1116	Machine Tool Lab II (part 2)	3
MACH	1120	Blueprint Reading and GDT	2
MACH	1125	Machine Tool Theory II	2
MACH	1135	CNC Programming and Operation	2
MACH	2100	Advanced CNC Mill Programming	2
MACH	2105	Computer Aided Manufacturing	2
MACH	2110	Tooling and CNC Lab I	4
MACH	2115	Lathe CNC Programming	2
MACH	2120	Moldmaking	3
MACH	2125	Tooling and CNC Lab II	3
MACH	2130	Diemaking	2
MACH	2135	Tooling and CNC Lab III	4
MACH	2145	Electrical Discharge Machining	2
		Electives	3
		Total Credits for Graduation	72

Machine Tool Technology, Diploma

Location: Granite Falls

MATH	1100	Integrated Math	3
SPCH	1101	Speech	3
GSCL	1105	Job Seeking Skills	1
GSCM	1120	Technical Writing	2
		General Education Elective	2
MACH	1100	Machine Tool Theory I	3
MACH	1105	Machine Tool Lab I	4
MACH	1106	Machine Tool Lab I (part 2)	3
MACH	1110	Blueprint Reading & Sketching	2
MACH	1115	Machine Tool Lab II	3
MACH	1116	Machine Tool Lab II (part 2)	3
MACH	1120	Blueprint Reading and GDT	2
MACH	1125	Machine Tool Theory II	2
MACH	1130	CAD	1
MACH	1135	CNC Programming and Operating	2
MACH	1200	Statistical Process Control	1
MACH	2100	Advanced CNC Mill Programming	2
MACH	2105	Computer Aided Manufacturing	2
MACH	2110	Tooling and CNC Lab I	4
MACH	2115	Lathe CNC Programming	2
MACH	2120	Moldmaking	3
MACH	2125	Tooling and CNC Lab II	3
MACH	2130	Diemaking	2
MACH	2135	Tooling and CNC Lab III	4
MACH	2140	Tooling and CNC Lab IV	4
MACH	2145	Electrical Discharge Machining	2
ROBT	1135	Electro Mechanical	3
		Total Credits	68

Advanced CNC Machinist and Tooling, Certificate

Location: Granite Falls

This program prepares individuals to operate a variety of manual and CNC (computer numerical control) machines to produce an end product of metal or plastic to an exacting tolerance. Areas of study include: blueprint reading, machining related math, operation of a variety of metal cutting equipment, related cutting tool theory, metallurgy and quality control. Students train on the latest AutoCAD and Matercam software available. The lab area is equipped with up to date industry current equipment. Graduates of the program find employment as CNC programmers, machinists, moldmakers, toolmakers, and other related areas in the machining industry, both in rural and metropolitan areas.

MACH 1200	Statistical Process Control	1
MACH 2100	Advanced CNC Mill Prog	2
MACH 2105	Computer Aided Manufacturing	2
MACH 2110	Tooling and CNC Lab I	4
MACH 2125	Tooling and CNC Lab II	3
MACH 2120	Mold Making	3
MACH 2135	Tooling and CNC Lab III	4
MACH 2140	Tooling and CNC Lab IV	4
MACH 2115	Lathe CNC Programming	2
MACH 2130	Diemaking	2
MACH 2145	Electrical Discharge Mach	2
Total Credits		29

CNC and Prototype Machinist, Certificate

Location: Granite Falls

MACH 1100	Machine Tool Theory I	3
MACH 1105	Machine Tool Lab I	4
MACH 1106	Machine Tool Lab I part 2	3
MACH 1110	Blueprint Reading	2
MACH 1130	Cad or Equivalent	1
MACH 1115	Machine Tool Lab II	3
MACH 1116	Machine Tool Lab II-part 2	3
MACH 1120	Blueprint Reading and GDT	2
MACH 1125	Machine Tool Theory II	2
MACH 1135	CNC Prog & Operation	2
Total Credits		25

Manufacturing Engineering Technician, A.A.S.

Location: Granite Falls

A Manufacturing Engineering Technician plans, directs and coordinates manufacturing processes in industrial plants: develops, evaluates, and improves manufacturing methods, utilizing knowledge of product design, materials, and parts. Fabrication processes, tooling and production equipment capabilities, assembly methods and quality control standards are also the responsibility of the technician.

They analyze and plan work force utilization, space requirements, and work flow and design layout of equipment and work space for maximum efficiency.

ENGL 1101	Composition I	3
MATH 1111	Algebra	3
	General Education Electives	11
CSCI 1101	Introduction to Microcomputers	3
FLPW 1100	Hydraulic Theory	4
FLPW 1120	Fluid Power Pneumatics and Accessories Theory	3
MACH 1200	Statistical Process Control	1
ROBT 1100	Fluid Power Hydraulic Lab	3
ROBT 1107	Electrical Theory I/Lab	3
ROBT 1115	Fluid Power Hydraulic/Pneumatic Circuits Lab	3
ROBT 1130	Robotics Drafting	2
ROBT 1135	Electromechanical Theory	2
ROBT 2100	Robotic Theory (PLC's/Motors)	3
ROBT 2105	Robotic Lab (PLCs/Motors)	5
ROBT 2115	Machine Shop	3
ROBT 2120	Machine Automation Theory	4
ROBT 2125	Machine Automation Lab	4
	Technical Electives	7
Total Credits		67

Massage Therapy, Diploma

Location: Jackson and Pipestone

Massage Therapy will provide graduates with a strong background for a career as a Massage Therapist in a variety of settings such as spas, salons, wellness centers, resorts, chiropractic offices, long term care facilities, rehabilitation centers, physicians offices, etc.

HC 1100	Nutrition	1
HC 1151	Body Structure & Function	3
HC 1290	Healthcare & Society	1
HC 2120	Disease Conditions	3
MSTH 1100	Intro to Massage	3
MSTH 1105	Kinesiology	2
MSTH 1110	Basic Massage I	6
HLTH 1117	CPR/AED for the Professional Rescuer	1
	or	
HLTH 1115	Community CPR/First Aid Basics	1
MSTH 1115	Massage Therapy	6
MSTH 1120	Client Massage	3
MSTH 1125	Massage Therapy Business Practices	3
Total Credits		32

Mathematics, A.A.

Location: Worthington

The program for the mathematics major follows the Associate in Arts and MTC requirements. Students should include the following in their program. Students interested in this degree should choose the Liberal Arts major on the application.

CSCI 1102	Introduction to Computers	3
ENGL 1101	Composition I	3
ENGL 1102	Composition II	3
HLTH 1101	Personal Wellness	3
MATH 1105	Statistics	4
MATH 1113	Pre Calculus	4
MATH 1121	Calculus I	4
MATH 1122	Calculus II	4
MATH 2201	Calculus III	4
MATH 2205	Differential Equations and Linear Algebra	5
PSYC 1101	Introduction to Psychology	4
PHYS 2121	General Physic I	5
PHYS 2122	General Physic II	5
SPCH 1101	Speech	3
BIOL	Biology Lab Course	3-4
	Humanities Electives	6
	Social Science Electives*	3-5
	Humanities Electives	3
Choose one of the following:		3-4
NSCI 1100	Issues in the Environment	3
GEOG 1101	Physical Geography	4
PSCI 2210	Environmental Politics	3
	Physical Education Activity	1
Total Credits		64

* If either PSCI 2210 or GEOG 1101 is taken to meet Areas 5 and 10, only three credits of SOC SCI electives are required.

** Depends on high school preparation and placement

*** Check with a counselor/advisor about the chemistry/physics requirements at transfer institutions.

Medical Administrative Secretary, A.A.S.**Locations: Granite Falls, Jackson, and Pipestone**

A medical secretary performs the confidential administrative and clerical work of a medical office. The variety of duties may include bookkeeping, billing, scheduling appointments, and processing insurance claims. Medical secretaries may be responsible for telephone, mail, transcription and typing duties. Other duties include ordering laboratory tests and supplies, as well as receiving, interviewing and instructing patients.

General Education Requirements: 20

ENGL	1101	Composition I	3
NSCI	1100	Issues in the Environment	3
PSYC	1101	Introduction to Psychology or	4
SOC	1101	Introduction to Sociology	3
SPCH	1101	Speech	3

Humanities Electives choose from: 3

Art, Foreign Language, Literature, Music, Philosophy, Theater, Western Civilization

Gen Ed Electives choose from: 4-5

English, Biology, Chemistry, Math above 1000 level, Physics, Natural Science, Art, Foreign Language, Literature, Music, Philosophy, Theater, Western Civilization, Economics, Geography, History, Political Science, Psychology, and Sociology

ADSA	1100	College Keyboarding I	3
ADSA	1105	College Keyboarding II	3
ADSA	1145	Supervisory Management	3
ADSA	1176	Business Communications	3
ADSM	1100	Medical Terminology I	2
ADSM	1105	Medical Insurance and Coding	2
ADSM	1110	Anatomy & Physiology/Disease Conditions I	2
ADSM	1115	Anatomy & Physiology/Disease Conditions II	2
ADSM	1120	Medical Office Procedures I	2
ADSA	1122	Word Processing I	2
ADSM	1140	Applied Medical Terminology	2
ADSM	1145	Medical Filing	2
ADSA	1123	Word Processing II	2
ADSM	1125	Medical Office Procedures II	2
ADSM	1130	Medical Machine Transcriptions I	2
ADSM	1135	Medical Machine Transcriptions II	2
CSCI	1102	Introduction to Microcomputers	3
		Electives	5
		Total Credits	64

Medical Secretary, Diploma**Locations: Granite Falls, Jackson, and Pipestone**

ADSM	1100	Medical Terminology I	2
ADSM	1105	Medical Insurance and Coding	2
ADSM	1110	Anatomy & Physiology/Disease Conditions I	2
ADSM	1120	Medical Office Procedures I	2
ADSM	1130	Medical Machine Transcriptions I	2
ADSA	1100	College Keyboarding I	3
ADSA	1122	Word Processing I	2
ADSA	1176	Business Communication	3

ADSM	1115	Anatomy & Physiology/Disease Conditions II	2
ADSM	1125	Medical Office Procedures II	2
ADSM	1135	Medical Machine Transcriptions II	2
ADSM	1140	Applied Medical Terminology	2
ADSM	1145	Medical Filing	2
GSSS	1100	Human Relations	2
CSCI	1102	Introduction to Microcomputers	3
		Electives	2
		Total Credits	35

Medical Coding Specialist, Diploma**Location: Canby, Granite Falls, Jackson, Pipestone, and Worthington**

Medical Coding Specialists work closely with other health care professionals in coding diagnosis and procedures on patient medical records, analyzing medical records for completeness of documentation, working with insurance companies, and reimbursement procedures.

ADSM	1100	Medical Terminology I	2
ADSM	1105	Medical Insurance/Coding	2
ADSM	1110	Anatomy & Physiology/ Disease Conditions I	2
ADSM	1120	Medical Office Procedures I	2
ADSA	1176	Business Communications	3
ADSM	1115	Anatomy & Physiology/Disease Conditions II	2
ADSM	1125	Medical Office Procedures II	2
ADSM	1140	Applied Medical Terminology	2
ADSM	1145	Medical Filing	2
ADSM	1155	Intermediate Medical Coding	2
ADSM	1160	Advanced Coding	3
CSCI	1102	Introduction to Microcomputers	3
		Technical Electives	5
		Total Credits	32

Suggested Technical Electives:

ADSM	1122	Word Processing I	2
ADSM	1130	Medical Machine Transcription I	2
ADSM	1135	Medical Machine Transcription II	2

Medical Receptionist, Certificate**Location: Pipestone**

Medical Receptionists prepare correspondence, records, charts, business forms, files and records reports, answers telephone, and greet patients. They may also sort mail, schedule appointments and distribute medical literature.

ADSA	1100	College Keyboarding I	3
ADSA	1122	Word Processing I	2
ADSA	1176	Business Communications	3
ADSM	1105	Medical Insurance/Coding	2
ADSM	1120	Medical Office Procedures I	2
ADSM	1125	Medical Office Procedures II	2
ADSM	1140	Applied Medical Terminology	2
ADSM	1145	Medical Filing	2
CSCI	1102	Introduction to Microcomputers	3
GSCL	1105	Job Seeking Skills	1
GSSS	1100	Human Relations	2
		Electives	2
		Total Credits	26

Medical Assistant, A.A.S.**Location: Worthington**

Medical Assistants help physicians examine and treat patients, as well as perform routine tasks needed to keep an office running efficiently. In small practices, medical assistants handle both clerical and clinical duties and report directly to the office manager or physician. Those employed in large practices tend to specialize in a particular area under the supervision of department administrators. Clerical duties may include patient scheduling, receptionist duties, medical record management, medical transcription, office correspondence, medical insurance procedures, and management of office accounts, fees, and collections. Clinical duties may include interviewing patients, patient education, taking vital signs, preparing patients for examination and assisting the physician during exams, performing routine laboratory testing and electrocardiography, sterilizing instruments, and equipment, and administering medications. Students enrolling in the medical assistant program must possess a high school diploma or GED. Prior to participating in the clinical externship, students must submit health information and evidence of valid CPR certification. Successful completion of all required program courses and general education courses with a grade of C or better is necessary to graduate.

Students in the medical assistant program will undergo a background study as required by Minnesota law.

BIOL	1100	Survey of Biological Science or	3
BIOL	1110	Principles of Biology or	4
BIOL	1115	Human Biology	3
ENGL	1101	Composition I	3
PSYC	1101	Introduction to Psychology	4
PSYC	1150	Developmental Psychology	3
		Humanities Elective	3
		General Education Electives	3-4
ADSM	1105	Medical Insurance and Coding	2
ADSM	1120	Medical Office Procedures I	2
ADSM	1125	Medical Office Procedures II	2
ADSM	1130	Medical Transcription	2
BIOL	2245	Medical Terminology	2
CSCI	1102	Introduction to Microcomputers	3
HC	1151	Body Structure and Function	3
HC	1290	Health Care & Society	1
HC	2120	Disease Conditions	3
HC	1117	CPR/AED for the Professional Rescuer	1
MDLT	1100	Intro to Med Lab Science	3
MDLT	2140	Diagnostic Testing	2
MEDA	1105	Clinical Procedures I	2
MEDA	1135	Laboratory Skills	2
MEDA	2100	Dosage Calculations	1
MEDA	2110	Clinical Procedures II	3
MEDA	2140	Externship	7
MEDA	2150	Pharmacology I	2
MEDA	2160	Pharmacology II	1
		Total Credits	64

Medical Assistant, Diploma**Location: Worthington**

ADSM	1105	Medical Insurance & Coding	2
ADSM	1120	Medical Office Procedures I	2
ADSM	1125	Medical Office Procedures II	2
ADSM	1130	Medical Transcription	2
BIOL	2245	Medical Terminology	2
CSCI	1102	Introduction to Microcomputers	3
HC	1151	Body Structure & Function	3
HC	1290	Health Care & Society	1
HC	2120	Disease Conditions	3
HLTH	1117	CPR/AED for the Professional Rescuer	1
MEDA	1105	Clinical Procedures I	2
MEDA	1135	Laboratory Skills	2
MEDA	2110	Clinical Procedures II	3
MEDA	2140	Externship	7
MDLT	1100	Intro to Lab Science	3
MDLT	2140	Diagnostic Testing	2
MEDA	2100	Dosage Calculations	1
MEDA	2150	Pharmacology I	2
MEDA	2160	Pharmacology II	1
		Total Credits	44

Medical Laboratory Technician, A.A.S.**Location: Worthington**

The Medical Laboratory Technician (MLT) student receives instruction in chemistry, hematology, urinalysis, bloodbanking, serology, microbiology, mycology, and parasitology and gains additional experience by completing an externship in a hospital medical laboratory. The medical laboratory technician works under the supervision of a medical technologist and performs general tests in all laboratory areas. Hospitals, for-profit laboratories, clinics, long-term care facilities and public health agencies may employ the MLT. It is recommended that students enrolling in the medical laboratory technician program have a science and math background and be certified in CPR. Prior to participating in the clinical externship, students must submit health information. Successful completion of all required program courses and general education courses with a grade of C or better is necessary to graduate. Students must test into MATH 0098 level. Students in the MLT will undergo a background study as required by Minnesota law.

BIOL	1110	Principles of Biology	4
BIOL	2245	Medical Terminology	2
CHEM	1150	Survey of Chemistry	4
ENGL	1101	Composition I	3
		Behavioral/Social Science Elective	3
		Humanities Electives	3
		Free Electives	2
MDLT	1100	Introduction to Laboratory Science	3
MDLT	1105	Microbiology I	3
MDLT	1110	Medical Lab Calculations	1
MDLT	1115	Biological Fluids	2
MDLT	1120	Immunology	3
MDLT	1125	Clinical Chemistry I	3
MDLT	1130	Hematology I	3
MDLT	2100	Microbiology II	3
MDLT	2106	Immunochemistry	3
MDLT	2110	Clinical Chemistry II	3
MDLT	2120	Hematology II	3

MDLT	2125	Externship I	12
MDLT	2130	Externship II	7
MDLT	2140	Diagnostic Testing	2
Total Credits			72

Phlebotomy, Certificate

Location: Worthington

The curriculum prepares the student for employment as a Phlebotomist/Laboratory assistant in a hospital, laboratory, or clinic. The training is designed to prepare students to collect specimens, perform veni punctures and dermal punctures, prepare and transport specimens, and perform laboratory computer operations. Full-time students can complete the academic portions of the program in two semesters.

The clinical portion of the program is by arrangement, and completion may vary by student. Successful completion of all required program courses and general education courses with a grade of C or better is necessary to graduate. Enrollment notes: A physical exam; hepatitis immunization; entrance assessment; application fee; and a copy of high school transcript, diploma or GED are all needed for enrollment.

Students in the Phlebotomy Technician program will undergo a background study as required by Minnesota law.

BIOL	2245	Medical Terminology	2
CSCI	1102	Introduction to Microcomputers	3
GSCL	1105	Job Seeking Skills	1
GSSS	1100	Human Relations	2
HC	1151	Body Structure and Function	3
HC	1290	Healthcare and Society	1
MDLT	1100	Introduction to Laboratory Science	3
MDLT	2200	Externship	4
MEDA	1135	Laboratory Skills	2
		Electives	2
Total Credits			23

Nursing Pathway - 1st Year

Location: Pipestone, Worthington and Distance

Nursing Pathway is designed to create upward mobility nursing education opportunities. After successful completion of the 1st year of the Nursing Pathway Program, students may choose to receive the Practical Nursing Diploma and be eligible to take the NCLEX-PN examination. Students may exit at this point or continue in the program to receive the Associate Degree in Nursing and are then eligible to take the RN licensing examination.

PREREQUISITES: These must be taken prior to starting the nursing program: nursing assistant course, computer science course or successful test out, medical terminology, BIOL 1115 Human Biology or equivalent biology course is required before taking Anatomy, and CPR for the Professional Rescuer (including infant/child/adult, 1 and 2 man rescue). You must remain certified through the completion of the program.

The following course sequence is required for completion of this program. Only students who have been accepted into the Nursing Pathway program are allowed to take the nursing courses.

Prerequisites

CSCI	1102	Intro to Microcomputers	3
BIOL	2245	Medical Terminology	2
BIOL	1115	Human Biology	3
HC	1175	Nurse Assistant/Home Health Aid	3
HLTH	1117	CPR for the Professional Rescuer	1
Total Prerequisites			12

BIOL	2201	Anatomy	4
PSYC	1150	Developmental Psychology	3
NURS	1100	Principles & Practices of Nursing	3
NURS	1120	Nursing of the Adult I	3
NURS	1130	Pharmacology	2
NURS	1140	Nursing Skills Lab	2
NURS	1180	Clinical Applications I	2
NURS	1220	Nursing of the Adult II	5
NURS	1280	Clinical Applications II	6
NURS	1250	Nursing/Childbearing Family	2
SPCH	1101	Introduction to Speech	3
Total Credits			37

NURS	1295	PN Integration (Upon Exiting)	2
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Recommended electives include: ENGL 1102, humanities, social sciences (HIST 1101, 1102, geography, political science or economics), chemistry, NSCI 1100, BIOL 1115, PSYC 1101

Humanities: choose from the areas of art, literature, theatre, HIST 1111, 1112, music, or any course with HUM designator

HESI score over 900 or HESI remediation within six weeks of completion of the program. The HESI is an indicator of how well a student will do on the NCLEX-PN test.

See information on Nursing Pathway - 2nd Year.

Nursing Pathway - 2nd Year, A.S.

Location: Pipestone, Worthington and Distance

Nursing Pathway-2nd Year is also an entrance point for mobility students who have graduated from another nursing program or have been working as a practical nurse. After successful completion of Nursing Pathway 2nd Year, students are qualified to receive the Associate Degree in Nursing and are then eligible to take the NCLEX-RN examination. Admission requirements include: a minimum decision score of 80 on the NLN exam, a grade of C or higher in all required coursework, a minimum GPA of 2.5, completion of the courses described below. NURS 2100, Professional Nursing Transition is required prior to entrance into Fall Semester nursing classes for students who have graduated from another nursing program. The following course sequence is required for completion of this program. Only students who have been accepted into the Nursing Pathway program are allowed to take the nursing courses.

Prerequisites

Nursing Pathway - 1st Year			
or			
Completion of practical nursing program (Advanced Standing)			25

CSCI	1102	Intro to Microcomputers	3
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BIOL 2245	Medical Terminology	2
BIOL 2201	Anatomy	4
PSYC 1150	Developmental Psychology	3
SPCH 1101	Introduction to Speech	3
NURS 2100	Professional Nursing Transition (required if you are from another nursing program)	2
Total Prerequisites		40-42
BIOL 2202	Physiology	4
ENGL 1101	Composition I	3
NURS 2120	Nursing Across Lifespan	4
NURS 2140	Professional Nursing Skills Lab	2
NURS 2180	Clinical Applications III Sociology Elective Course	2 3
PHIL 2201	Intro to Ethical Theory	1
PHIL 2222	Medical Ethics Humanities Elective Course	1 3
NURS 2220	Nursing Across Lifespan II	4
NURS 2230	Trends and Issues	1
NURS 2280	Clinical Applications IV	3
NURS 2240	Manager of Care General Education Electives	2 3-5
Total Credits		36-38

Recommended electives include: ENGL 1102, humanities, social sciences (HIST 1101, 1102, geography, political science or economics) , chemistry, NSCI 1100, BIOL 1115, PSYC 1101

Humanities: choose from the areas of art, literature, theatre, HIST 1111, 1112, music, or any course with HUM designator.

HESI score over 900 or HESI remediation within six weeks of completion of the program. The HESI is an indicator of how well a student will do on the NCLEX-RN test.

Three Year Nursing Pathway

Location: Pipestone, Worthington and Distance

The Three Year Nursing Pathway (distance learning nursing) is a six-semester program that begins with general education courses required in the nursing program. The second year of coursework educates you to practice as a practical nurse. The third year of coursework leads to the Associate in Science Degree in Nursing. The lecture portion of the program is delivered online and via ITV. Lab and clinical settings are located in southwest Minnesota.

PREREQUISITE: PSB Nursing Aptitude Test must be completed before March 1st of the year in which you wish to be considered for acceptance in the Nursing Pathway Program; 75 hour nursing assistant course and CPR for the Professional Rescuer must be completed before the beginning of the 3rd semester. BIOL 1115, Human Biology, or equivalent biology course is required before taking Anatomy.

1st Semester

BIOL 2201	Anatomy	4
BIOL 2245	Medical Terminology	2
CSCI 1102	Intro to Microcomputers	3
PSYC 1150	Developmental Psychology	3

2nd Semester

BIOL 2202	Physiology	4
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ENGL 1101	Composition I	3
SOC 1101	Elective Course	3
SPCH 1101	Introduction to Speech	3

3rd Semester

Humanities Elective		3
NURS 1100	Principles & Practices of Nursing	3
NURS 1120	Nursing of the Adult I	3
NURS 1130	Pharmacology	2
NURS 1140	Nursing Skills Lab	2
NURS 1180	Clinical Applications I	2

4th Semester

NURS 1220	Nursing of the Adult II	5
NURS 1280	Clinical Applications II	6
NURS 1250	Nursing/Childbearing Family	2

5th Semester

General Education Electives		3-5
NURS 2120	Nursing Across Lifespan	4
NURS 2140	Professional Nursing Skills Lab	2
NURS 2180	Clinical Applications III	2

6th Semester

PHIL 2201	Intro to Ethical Theory	1
PHIL 2222	Medical Ethics	1
NURS 2220	Nursing Across Lifespan II	4
NURS 2230	Trends and Issues	1
NURS 2240	Manager of Care	2
NURS 2280	Clinical Applications IV	3
Total Credits		76-78

Recommended electives include: ENGL 1102, humanities, social sciences (HIST 1101, 1102, geography, political science or economics) , chemistry, NSCI 1100, BIOL 1115, PSYC 1101

Humanities: choose from the areas of art, literature, theatre, HIST 1111, 1112, music, or any course with HUM designator.

Occupational Therapy, (pre-occupational therapy) A.A.

Location: Worthington

Occupational therapy is treatment by means of mental and physical activities, including arts and crafts. The ultimate objective of the occupational therapist is to help individuals help themselves to restore their highest level of independence through improvement of their physical, emotional and social well-being. You may complete the Associate in Arts or the Associate in Science degree depending on your transfer institution. The program listed meets MTC and is an Associate in Arts program. Students interested in this degree should choose the Liberal Arts major on the application.

ART 1118	Arts and Crafts	3
BIOL 1110	Principles of Biology	4
BIOL 2250	Anatomy & Physiology I	4
BIOL 2260	Anatomy & Physiology II	4
CHEM 1101	General Inorganic Chemistry I	5
CSCI 1102	Introduction to Microcomputers	3
ENGL 1101	Composition I	3
ENGL 1102	Composition II	3
GEOG 1101	Introduction to Geography	4
HLTH 1101	Personal Wellness	3
MATH 1111	College Algebra	3
PHIL 2201	Introduction to Ethical Theory	1
PHIL 2222	Medical Ethics	1

PHYS	1201	Fundamentals of Physics I	4
PSYC	1101	Introduction to Psychology	4
PSYC	1150	Developmental Psychology	3
SOC	1101	Introduction to Sociology	3
SPCH	1101	Introduction to Speech	3
THTR	1101	Introduction to Theater	3
NSCI	1100	Issues in the Environment	3
		or	
PSCI	2210	Environmental Politics	3
		Physical Education Activity	1
		Social Science Course*	3
		Total Credits	64

* If either PSCI 2210 or GEOG 1101 is taken to meet Areas 5 and 10, only three credits of Social Science electives are required.

Optometry (pre-optometry), A.S.

Location: Worthington

Students planning to pursue the pre-optometry program at Minnesota West-Worthington campus are advised to determine quite early in their program where they plan to complete the degree requirements. The lower division courses are similar for pre-optometry programs, but in most cases the applicant must complete a prescribed set of courses of he/she is not accepted for study. These courses are available at Minnesota West-Worthington campus for the pre-optometry major and we will assist you in gaining acceptance for further training. Students planning to study as optometrists are expected to perform in the "B" range and above. The following program is patterned after the University of Minnesota. Students are encouraged to complete the Associate in Arts degree or the Minnesota Transfer Curriculum requirements. **THIS WILL TAKE ONE ADDITIONAL SEMESTER.** To complete the Associate in Arts degree and MTC requirements, students should add: five credits of HUM courses; five credits of SOC SCI courses; two-nine credits to meet Areas 8, 9, 10 (if not met through HUM or SOC SCI courses); three credits of PSYC 1150; one credit of PHED Activity (if not previously completed); three credits HLTH 1101; HLTH 1110 (three credits) is also strongly recommended. This is a total of 18-29 additional credits. Students interested in this degree should choose the Liberal Arts major on the application.

FRESHMAN

ENGL	1101	Composition I	3
MATH	1113	Pre-Calculus	4
MATH	1121	**Calculus I	4
CHEM	1101	General Inorganic Chemistry I	4
CHEM	1102	General Inorganic Chemistry II	4
BIOL	1110	Principles of Biology	4
		*Humanities Electives	3
ENGL	1102	Composition II	3
SPCH	1101	Introduction to Speech	3

SOPHOMORE

CHEM	2201	Organic Chemistry I	5
PHYS	1201	Fundamentals of Physics I	4
PSYC	1101	*Introduction to Psychology	4
BIOL	2250	Anatomy and Physiology I	4
BIOL	2260	Anatomy and Physiology II	4

BIOL	2270	Microbiology	4
		Math Electives	3
		Social Science Electives	3
		Health/Physical Educ Electives	1
		Total Credits	64

* Minimums only.

** Check with a counselor/advisor about the requirements at transfer institutions.

Pharmacy (pre-pharmacy), A.S.

Location: Worthington

The College of Pharmacy at the University of Minnesota, South Dakota State University, and North Dakota State University have Pharm-D (Doctor of Pharmacy) degrees. The completion of two years of college work is required for admission to all three universities. The following courses offered at Minnesota West meet the requirements for entrance to the College of Pharmacy at the University of Minnesota. The program can be adjusted to meet the requirements at other colleges of pharmacy. This meets the Associate in Science degree requirements. Students are encouraged to complete the Associate in Arts degree and the MTC if they plan to attend the University of Minnesota. A year of college-level World Language or second language proficiency may be required by some schools and is highly desired when seeking employment. Students interested in this degree should choose the Liberal Arts major on the application.

BIOL	1110	Principles of Biology	4
BIOL	2220	Animal Biology	4
BIOL	2250	Anatomy & Physiology I	4
BIOL	2260	Anatomy & Physiology II	4
BIOL	2270	Microbiology	4
CHEM	1101	General Inorganic Chemistry I	4
CHEM	1102	General Inorganic Chemistry II	4
CHEM	2201	Organic Chemistry I	4
CHEM	2202	Organic Chemistry II	4
CSCI	1102	Introduction to Microcomputers	3
ECON	2201	Principles of Macroeconomics	3
		or	
ECON	2202	Principles of Microeconomics	3
ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
MATH	1113	Pre-Calculus	4
MATH	1121	***Calculus I	5
		Health/Physical Education Activity	1
PHYS	1201	Fundamentals of Physics I	4
PHYS	1202	Fundamentals of Physics II	4
SPCH	1101	Introduction to Speech	3
PSYC	1101	Introduction to Psychology	4
SOC	1101	Introduction to Sociology	3
		Humanities Elective**	
		Total Credits	64

* Depends on transfer institution

** Minimums only

*** Depends on high school preparation and placement To complete the Associate in Arts degree in one additional semester, students should take: five credits HUM; three credits HLTH 1101; three credits PSCI

2210, NSCI 1100 or GEOG 1101; one credit PHED Activity (if not previously completed); three credits SOC SCI; four-six credits to meet MTC Areas 8 and 9 if not previously met by HUM/SOC SCI courses. three credits of HLTH 1110 is strongly recommended. This totals 11-24 additional credits.

NOTE: The transfer institution of all applicants requires the Pharmacy College Admission Test (PCAT). Applications for the PCAT are available in the counseling office.

Physical Education, Health, Recreation/Parks Administration, A.A.

Location: Worthington

The lower division courses for these three areas of concentration are basically the same. Therefore, we have listed them under a common heading in the program of study. The student is advised to check with Minnesota West-Worthington campus counseling staff for the exact requirements for the four-year college he/she intends to attend.

Recreation/Parks Administration majors may specialize in one of several areas of concentration. The area desired should be determined while in attendance at Minnesota West in order to meet the transfer requirements. Additional credits in business courses may be in order for some receiving colleges. The curriculum requirements below meet the MTC requirements.

All students who plan to enroll in education programs must complete the PPST before completing education courses in the junior year. The PPST Bulletin is available in the Student Services Office.

BIOL	2250	Anatomy & Physiology I	4
BIOL	2260	Anatomy & Physiology II	4
ENGL	1101	Composition I	3
		Math Elective	3
PHED	1101	Foundations of Health, Physical Education & Recreation	3
PHED	2101	History of Physical Education & Sports	2
HLTH	2220	Drugs, Society and the Individual Physical Activity	3 4
HLTH	1101	Personal Wellness	3
HLTH	1115	Community CPR and First Aid	1
NSCI	1100	Issues in the Environment	3
		or	
PSCI	2210	Environmental Politics	3
		or	
GEOG	1101	Intro to Physical Geography	4
ENGL	1102	Composition II	3
PHED	1110	Care & Prevention of Athletic Injuries I	3
		Biology Elective	3
		Physics Electives	3
		Humanities Electives	9
		Social Science Electives**	9
		Total Credits	64

* Recommended electives: PHED 2297 (Cooperative Education) and other PHED Activity courses

** If either PSCI 2210 or GEOG 1101 is taken to meet Areas 5 and 10, deduct three credits from SOC SCI requirements.

Plumbing Technology, A.A.S.

Location: Pipestone

The Plumbing Technology Program prepares students for work in all phases of plumbing, heating and air conditioning using a variety of hand and power tool skills. Course work includes training in assembly, installation and repair of pipes, fittings and fixtures which make up water supply or waste disposal systems. Minnesota State plumbing license and other certification is attained upon completion of the program.

The Plumbing Technology graduate studies building plans and working drawings to determine work aids and plans the sequence of installation according to print specifications and codes. The majority of plumbers enter the trade as apprentices, working toward journeyman and master status in residential, commercial and industrial work. Plumbers work in various sized shops in many communities and employment exists nationwide.

ENGL	1101	Composition I	3
NSCI	1110	Issues in the Environment	3
PSYC	1101	Introduction to Psychology	4
SPCH	1101	Speech	3
		Humanities Elective	3
		General Education Electives	4
HVAC	1100	Refrigeration Fundamentals	3
HVAC	1140	Heating Fundamentals	3
PLMB	1100	Code	3
PLMB	1106	Plumbing Installation	3
PLMB	1110	Introduction to Plumbing	3
PLMB	1115	Plumbing Welding	3
PLMB	1120	Plumbing Piping Water	3
PLMB	1130	Blueprint and Estimate	2
PLMB	1135	Sewage Disposal and Survey	2
PLMB	1140	Plumbing Pipefitting	3
PLMB	1145	Plastic Installation	3
PLMB	1150	Water Treatment Methods/Codes	2
		Electives	11
		Total Credits	64

Plumbing Technician, Diploma

Location: Pipestone

General Education and/or GSCL1105 Job Seeking Skills, GSCM1120 Technical Writing, GSSS1100 Human Relations

HVAC	1100	Refrigeration Fundamentals	3
HVAC	1140	Heating Fundamentals	3
PLMB	1100	Code	3
PLMB	1106	Plumbing Installation	3
PLMB	1110	Introduction to Plumbing	3
PLMB	1115	Plumbing Welding	3
PLMB	1120	Plumbing Piping Water	3
PLMB	1130	Blueprint and Estimate	2
PLMB	1135	Sewage Disposal and Survey	2
PLMB	1140	Plumbing Pipefitting	3

PLMB	1145	Plastic Installation	3
PLMB	1150	Water Treatment Methods/Codes	2
		Electives	8
		Total Credits	45

Plumbing, Diploma

Location: Pipestone

PLMB	1100	Code	3
PLMB	1106	Plumbing Installation	3
PLMB	1110	Introduction to Plumbing	3
PLMB	1115	Plumbing Welding	3
PLMB	1120	Plumbing Piping Water	3
PLMB	1130	Blueprint and Estimate	2
PLMB	1135	Sewage Disposal and Survey	2
PLMB	1140	Plumbing Pipefitting	3
PLMB	1145	Plastic Installation	3
PLMB	1150	Water Treatment Methods/Codes	2
		Electives	5
		Total Credits	32

Power Sports Technology, Diploma

Location: Jackson

To prepare students for employment at motorcycle, snowmobile & ATV dealerships, distributorships and manufacturers. The primary focus of the program is involving diagnosis, service, and repair. Students entering this program should have good mechanical aptitude, communication skills, and the ability to comprehend service literature.

TRPS	1100	Engine Technology	4
TRPS	1105	Fuel Systems I	3
TRPS	1110	Fuel Systems II	3
TRPS	1115	Power Train	3
TRPS	1112	Electrical Systems	3
TRPS	1120	Shop Operations	2
TRPS	1125	Onboard Computers	3
TRPS	1130	Ignition Systems	3
TRPS	1135	Brakes	2
TRPS	1140	Business Operations	1
TRPS	1145	Steering and Suspension	3
TRPS	1150	Special Topics	1-3
		Total Credits	32

Powerline Technology, A.A.S.

Location: Jackson

The Powerline Technician major is designed to train students to become apprentices in powerline construction and maintenance. Students learn basic skills and applications in transmission and distribution. Persons trained in this field, work for power companies installing and maintaining overhead and underground powerlines. They install equipment such as overvoltage and overcurrent protective devices, transformers, capacitors, and regulators.

The 16 credits of General Education required are:

ENGL	1101	Composition I	3
MATH	1111	College Algebra or higher	3
		General Education Elective	10
ELCO	1100	Electrical Circuits Fundamentals	3
ELCO	1105	Electrical Circuits Fund. Lab	3
ELUT	1101	Electrical and Rigging Safety	2
ELUT	1105	Blueprint, Schematics and Transit	3

ELPL	1140	Construction Of Underground Powerlines	2
ELUT	1110	Transformer Banking I	3
ELUT	1115	Generation Transmission & Distribution	3
ENGL	1101	Composition I	3
ELPL	1100	Pole Climbing & Equip. Operation	3
ELPL	1106	Electrical Distribution of Powerlines I	3
ELUT	2110	Transformer Banking II	3
ELUT	2116	Reclosures & Protective Equipment	3
ELUT	2121	Protective Relays I	3
ELPL	1116	Electrical Distribution of Powerlines II	3
ELPL	1121	Electrical Distribution of Powerlines III	3
ELUT	2100	Metering I	2
ELUT	2105	Metering II	2
ELUT	2126	Regulators and Capacitors	3
		Technical Electives	1
		Humanities Electives	3

Humanities Electives 3 credits from:

Art, Foreign Language, Literature, Music, Philosophy, Theater, Western Civilization.

General Education Electives 7 credits from:

English, Biology, Chemistry, Math, Physics, Natural Science, Art, Foreign Language, Literature, Music, Philosophy, Theater, Western Civilization, Economics, Geography, History, Political Science, Psychology, and Sociology.

Suggested 1 credit of Technical Electives from:

ADSA 1100-College Keyboarding I, 3 credits, ADSA 1122-Word Processing I, 2 credits, ADSA 1190-Presentation Graphics, 2 credits, AUTO 1195-Commercial Drivers License, 2 credits, ELUT 1120-Specification, Testing, Maint., 2 credits, ELUT 2135-Enrichment I, 2 credits, ELUT 2140-Enrichment II, 2 credits.

Total Credits 64

Powerline Technician, Diploma

Location: Jackson

The Powerline Technician major is designed to train students to become apprentices in powerline construction and maintenance. Students learn basic skills and applications in transmission and distribution. Persons trained in this field, work for power companies installing and maintaining overhead and underground powerlines. They install equipment such as overvoltage and overcurrent protective devices, transformers, capacitors, and regulators. Powerline technicians are employed by investor owned power companies, consumer owned power companies, municipalities, and by electrical contractors.

General Education or Related from the following:

10
GSSS 1100-Human Relations, GSCL 1105-Job Seeking Skills, GSCM 1120 Technical Writing or the following General Education Classes: English, Biology, chemistry, Math above 1000 level, Physics, Natural Science, Art, Foreign Language, Literature, Music, Philosophy, theater, Western Civilization, Economics,

Geography, History, Political Science, Psychology, and Sociology **Recommended General Education credits are:** Integrated Math, Speech, and Composition I

ELCO	1100	Electrical Circuits Fundamentals	3
ELCO	1105	Electrical Circuits Fund. Lab	3
ELEC	1235	Electrical Calculations	2
		or	
MATH	1100	or greater	3
ELUT	1101	Electrical Rigging and Safety	2
ELUT	1105	Blueprint, Schematics and Transit	3
ELUT	1110	Transformer Banking I	3
ELUT	1115	Generation, Transmission and Distribution	3
ELPL	1100	Pole Climbing and Equipment Operations	3
ELPL	1106	Electric Distribution of Powerlines I	3
ELPL	1116	Electric Distribution of Powerlines II	3
ELPL	1121	Electric Distribution of Powerlines III	3
ELPL	1140	Construction of Underground Powerlines	2
ELUT	2100	Metering I	2
ELUT	2105	Metering II	2
ELUT	2110	Transformer Banking II	3
ELUT	2116	Reclosures and Protective Equipment	3
ELUT	2121	Protective Relays	3
ELUT	2126	Regulators and Capacitors Electives	5

Suggested 5 credits of Electives from:
 ADSA 1100-College Keyboarding I, ADSA 1122-Word Processing I, ADSA 1190-Presentation Graphics, AUTO 1195-Commercial Drivers License, ELUT 2135-Enrichment I, ELUT 2140-Enrichment II
Total Credits 64

Powerline, Diploma
Location: Jackson

ELCO	1100	Electrical Circuits Fundamentals	3
ELCO	1105	Electrical Circuits Fund. Lab	3
ELEC	1235	Electrical Calculations	2
		or	
MATH	1100	Integrated Math (or higher)	3
ELPL	1100	Pole Climbing & Equip. Operation	3
ELPL	1106	Electrical Distribution of Powerlines I	3
ELPL	1116	Electrical Distribution of Powerlines II	3
ELPL	1121	Electrical Distribution of Powerlines I	3
ELPL	1140	Const. of Underground Powerlines	2
ELUT	1101	Electrical and Rigging Safety	2
ELUT	1105	Blueprint, Schematics and Transit	3
ELUT	1110	Transformer Banking I	3
ELUT	1115	Generation, Transmission and Distribution	3
		Electives	1-2

Suggested Electives from:
 MATH 1111-College Algebra, MATH 1100-Integrated Math, AUTO 1195 Commercial Drivers License, ELUT 2100-Metering I (with Instructor's Permission), ELUT 2115-Reclosures and Protective Equipment, ELUT

2125-Regulators and Capacitors, HLTH 1115-Community CPR/First Aid.

Total Credits 35

Psychology and Sociology, A.A.

Location: Worthington

This program allows students to prepare themselves for entrance into either four-year social work, psychology, or sociology programs. It can be altered to meet individual college and student needs. The program below meets MTC and Associate in Arts degree requirements. Students interested in this degree should choose the Liberal Arts major on the application.

CSCI	1102	Introduction to Microcomputers	3
ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
HLTH	1101	Personal Wellness	3
HLTH	2220	Drugs, Society and the Individual	3
HSER	1101	Introduction to Human Services	2
MATH	1105	Intro to Probability & Statistics	4
NSCI	1100	Issues in the Environment	3
		or	
PSCI	2210	Environmental Politics	3
		or	
GEOG	1101	Intro to Physical Geography	4
PSCI	2202	State and Local Government	3
		or	
		**Social Science Electives	3
PSYC	2230	Behavior Modification	3
		or	
PSYC	1150	Developmental Psychology	3
PSYC	1101	Introduction to Psychology	4
PSYC	2221	Abnormal Psychology	3
SPCH	1101	Introduction to Speech	3
SOC	1101	Introduction to Sociology	3
SOC	2220	Family Life Dynamics	3
		Biology Electives	3-4
		Chemistry/Physics Electives	3-5
		Humanities Electives	9
		Physical Education Activity	1
		Total Credits	72-77

* Dependent on transfer institution. See counselor advisor for assistance in choosing electives.
 ** If either PSCI 2210 or GEOG 1101 is taken to meet Areas 5 and 10 of MTC, the SOC SCI requirement is complete. Proficiency in a second language is highly recommended when seeking employment.

Renewable Energy Technology, A.A.S.

Location: Granite Falls

Renewable Energy Technicians will be trained for entry into the agricultural processing plant industry, which converts crops such as corn, soybeans, alfalfa, and sugar beets into products and by-products such as ethanol, soy oil, corn syrup, starch, carbon dioxide, and bulk/bagged sugar. Today's processing plants are highly technical and completely automated, and the Renewable Energy Technicians have an enormous amount of responsibility to ensure that the plant continues to operate in the most efficient and economic way possible. To do so, the technician needs to be conversant in mechanical and instrumentation basics,

chemical and microbiological processes, safety fundamentals, and process optimization techniques.

BIOL	1110	Principles of Biology	4
CHEM	1150	Survey of Chemistry	4
CSCI	1102	Introduction to Microcomputers	3
ENGL	1101	Composition I	3
MATH	1100	Integrated Math	3
		Gen Ed Elective/College Algebra	3
		Social Science Elective	3
FLPW	1100	Hydraulic Theory	4
FLPW	2136	Programmable Logic Controls	3
RNEW	1100	Process Dynamics	3
RNEW	1101	Ethanol Process Fundamentals	2
RNEW	1105	Introduction to OSHA	1
RNEW	1110	Boiler Systems	1
RNEW	1115	Mechanical Fundamentals	2
RNEW	1125	P & ID, PFD	1
RNEW	1130	Pollution Control Fundamentals	2
RNEW	1135	Distillation & Evaporation Theory	4
RNEW	1140	Process Chemistry	2
RNEW	1145	Seminar	1
RNEW	1155	Process Optimization Lab	3
RNEW	1160	Instrumentation & Control	3
RNEW	1170	Microbial Ecology	2
RNEW	1175	Industrial Water Treatment	2
ROBT	1106	Electrical Theory I/Lab	3
ROBT	1135	Electromechanical Theory	2
		Technical Electives (must be approved by Advisor)	4
Approved Technical Electives:			
FLPW	1120	Pneumatics & Accessories Theory	3
CST	1180	Data Security Awareness	1
		Total Credits	68

Renewable Energy Base, Certificate

Location: Granite Falls and Online

The Renewable Energy Base program focuses on ethanol production. This certificate will enhance an individual's ability to enter and advance a career in the renewable energy industry, such as a process technician or in sales and marketing.

RNEW	1100	Process Dynamics	3
RNEW	1101	Ethanol Process Fundamentals	2
RNEW	1115	Mechanical Fundamentals	2
RNEW	1125	P & ID and PFD Reading	1
RNEW	1160	Instrumentation and Control	3
		Total Credits	11

Robotics Technology, A.A.S.

Location: Granite Falls

A robotic technician is a highly skilled person who works with a team of manufacturing specialists in the rapidly expanding and dynamic industry of automated manufacturing. The team of specialists may include sales representatives, managers, engineers and technologists possessing such diverse disciplines as manufacturing process control, product development, fluid power, mechanical, electrical, electronics, and computer skills. Trained and qualified robotics technicians are finding employment as technical sales persons, engineering aids, maintenance technicians, lab technicians and automation applications technician positions. To become an automation professional, the robotics student receives extensive training in

electronics, computer controls, data acquisition, mechanical controls, pneumatics, electrical power, motors and hydraulics relative to industrial robots and other automated manufacturing systems and equipment.

ENGL	1101	Composition I	3
MATH	1111	College Algebra	3
		General Education Electives	11
CSCI	1102	Introduction to Microcomputers	3
FLPW	1100	Hydraulic Theory	4
FLPW	1120	Fluid Power Pneumatics and Accessories Theory	3
FLPW	2141	Proportional and Servo Control Theory	2
GSCL	1105	Job Seeking Skills	1
RNEW	1160	Instrumentation & Control	3
RNEW	1115	Mechanical Fundamentals	2
ROBT	1107	Electrical Theory I/Lab	3
ROBT	1130	Robotics Drafting	2
ROBT	1122	Electrical Theory II	2
ROBT	1135	Electromechanical Theory	2
ROBT	2100	Robotic Theory (PLC's/Motors)	3
ROBT	2105	Robotic Lab (PLC's/Motors)	5
MACH	1200	Statistical Process Control	1
ROBT	2115	Machine Shop	3
ROBT	2120	Machine Automation Theory	4
ROBT	2125	Machine Automation Lab	4
ROBT	2135	Robotic Workcell Development	2
		Elective	1
		Total Credits	67

Robotics Technician, Diploma

Location: Granite Falls

CSCI	1102	Introduction to Microcomputers	3
FLPW	1100	Hydraulic Theory	4
FLPW	1120	Fluid Power Pneumatics and Accessories Theory	3
FLPW	2141	Proportional and Servo	2
GSCL	1105	Job Seeking Skills	1
GSCM	1120	Technical Writing	2
MACH	1200	Statistical Process Control	1
MATH	1100	Integrated Math	3
RNEW	1115	Mechanical Fundamentals	2
RNEW	1160	Instrumentation & Control	3
ROBT	1100	Fluid Power Hydraulic Lab	3
ROBT	1107	Electrical Theory I/Lab	3
ROBT	1115	Fluid Power Hydraulic/Pneumatic Circuits Lab	3
ROBT	1122	Electrical Theory II	2
ROBT	1130	Robotics Drafting	2
ROBT	1135	Electromechanical Theory	2
ROBT	2100	Robotic Theory (PLCs/Motors)	3
ROBT	2105	Robotic Lab (PLCs/Motors)	5
ROBT	2115	Machine Shop	3
ROBT	2120	Machine Automation Theory	4
ROBT	2125	Machine Automation Lab	4
ROBT	2135	Robotic Workcell Development	2
		Control Theory	2
SPCH	1101	Speech	3
		Electives	2
		Total Credits	65

Wind Energy Technology, A.A.S.**Location: Canby**

As energy costs continue to escalate, the demand for lower cost, more efficient, and renewable energy sources continue to be explored. The career of Wind Energy Technician includes everything from installation and repair to troubleshooting of wind energy towers. This technician will be capable of working closely with clients with an understanding of environmental issues and politics, written technical skills, and data interpretation.

General Education 17

ELCO	1100	Electrical Circuit Fundamentals and	3
ELCO	1105	Electrical Circuit Fundamentals Lab3 or	3
ELCO	1101	DC Circuits and	3
ELCO	1106	AC Circuits	3
ELEC	1225	Electric Motors	4
ELEC	1230	Safety Principles and OSHA	1
ELEC	2205	Electric Motor Control I	4
ELEC	2230	Programmable Logic Controllers	4
ELUT	1110	Transformer Banking I	3
ELWT	1100	Wind Energy Fundamentals	3
ELWT	1110	Mechanical Systems	3
ELWT	1120	Air Foils, Blades, and Rotors	3
ELWT	1130	Drive Trains, Yaw Systems and Towers	3
ELWT	1140	Energy Systems	3
ELWT	1150	Wind Turbines	3
FLPW	1100	Fluid Power Hydraulic Theory	4
HVAC	1145	Basic Electronics	2
HLTH	1115	Community CPR/First Aid	1
Total Credits			64

Wind Energy Mechanic, Diploma**Location: Canby**

ELCO	1100	Electrical Circuit Fundamentals and	3
ELCO	1105	Electrical Circuit Fundamentals Lab3 or	3
ELCO	1101	DC Circuits and	3
ELCO	1106	AC Circuits	3

ELWT	1100	Wind Energy Fundamentals	3
ELWT	1110	Mechanical Systems	3
ELWT	1120	Air Foils, Blades, and Rotors	3
ELWT	1130	Drive Trains, Yaw Systems and Towers	3
ELWT	1140	Energy Systems	3
ELWT	1150	Wind Turbines	3
FLPW	1100	Fluid Power Hydraulic Theory	4
ELEC	1230	Safety Principles and OSHA	1
HVAC	1145	Basic Electronics	2
HLTH	1115	Community CPR/First Aid	1
Total Credits			32

Windsmith, Certificate**Location: Online**

The career of Windsmith includes everything from installation and repair to troubleshooting of wind energy towers. This technician will be capable of working closely with clients with an understanding of environmental issues and politics, written technical skills, and data interpretation.

ELCO	1101	DC Circuits	3
ELCO	1106	AC Circuits	3
ELTL	1104	Basic Digital Circuits	2
ELWT	1100	Wind Energy Fundamentals	2
ELWT	1105	OSHA	1
FLPW	1100	Fluid Power Hydraulic Theory	4
Total Credits			15

Management Programs

More information on Minnesota Management programs is available at www.mgt.org

Computerized Small Business Management, Diploma

Location: Granite Falls and Pipestone

Computerizing Small Business is a program designed to assist the small business owner in maximizing the effectiveness of office computerization and accounting applications. Program instructors target instruction to areas that will enable entrepreneurs to meet their business and family goals. A structured program is used to analyze current systems, evaluate business applications for the computer, identify the advantages of computerized systems, and examine software & hardware currently available. This program may use a combination of individualized on-site instruction, tailored to the specific business needs, and classroom delivery. The mission of the Computerizing Small Business program is to encourage more businesses to take advantage of the cost savings and productivity improvement opportunities available through efficient office automation. This is accomplished through instruction that helps the business owner better understand and thus simplify the computerization process and use of application software.

Prerequisites:

To be eligible for enrollment in Computerized Small Business Management courses, the student must be a small business operator or must secure the consent of the instructor.

CSBM 1100	Disk Operating Systems	1
CSCM 1110	General Ledger	3
CSBM 1120	Bank Reconciliation	2
CSBM 1130	Accounts Receivable	3
CSBM 1140	Accounts Payable	3
CSBM 1150	Payroll	3
CSBM 1160	Government Payroll Reporting	2
	Electives	15
	Total Credits	32

Farm Business Management, Diploma

Locations: Canby, Jackson, and Pipestone

Sites: Canby, Fulda, Granite Falls, Jackson, Lakefield, Luverne, Marshall, Mt. Lake, Okabena, Pipestone, Slayton, St. James, Truman, Tyler, Welcome, Worthington

This diploma program is designed to provide education to farm owners and operators or persons interested in farming. The purpose of the program is to assist students in meeting their business and personal goals. This is best accomplished through the use of quality records and sound business decisions. Effective financial management in the business is the best way for the business to maintain that competitive edge. Instructors in Minnesota's Farm Business Management Education Programs deliver the program using a variety of methods. The primary delivery method is through individualized instruction at the students business. Instructors meet with the students on a regular basis to evaluate the business and develop

individual educational plans. Instruction is also delivered in the traditional classroom, small group meetings, field trips, and tours.

Prerequisites: To be eligible for enrollment in Farm Business Management courses, the student must be a farm business operator or manager or must secure the consent of the instructor.

General Education and/or General Studies			10
FBMT 1112	Foundation for FBM		4
FBMT 1121	Preparation for Farm Business Analysis		4
FBMT 1122	Implementing the System Management Plan		4
FBMT 1131	Managing & Modifying Farm System Data		4
FBMT 1132	Interpreting & Using Farm System Data		4
FBMT 1211	Introduction to FBM		4
FBMT 1223	Using System Analysis in Total Farm Planning		2
FBMT 2141	Interpreting & Evaluating Financial Data		4
FBMT 2142	Interpreting Trends		4
FBMT 2151	Strategies Data Management		4
FBMT 2152	Financial Planning		4
FBMT 2161	Examination of the Context of Farm System Management		4
FBMT 2162	Refining Farm System Mgt.		4
	Total Credits		60

Advanced Farm Business Management, Certificate

Locations: Canby, Jackson, and Pipestone

Sites: Canby, Fulda, Granite Falls, Jackson, Lakefield, Luverne, Marshall, Mt. Lake, Okabena, Pipestone, Slayton, St. James, Truman, Tyler, Welcome, Worthington

This certificate program is designed to provide instruction for students who have completed the other programs in the Farm Business Management curriculum. Students in this program will learn about key factors in business management for the long term: Risk Management, Strategic Planning, and Business Plan development. Prior instruction in Farm Business Management lays the groundwork for continued enhancement of financial management skills for the students in this program. Students will focus on using financial trends in their business to fine-tune the focus and strategize opportunities for the long-term profitability of their business.

FBMA 2100	Fundamentals of Financial Management as it relates to Risk Management	3
FBMA 2101	Applied Financial Management as it Relates to Risk Management	3
FBMA 2110	Fundamentals of Financial Management/Strategic Planning Emphasis	3
FBMA 2111	Applied Financial Management/ Strategic Planning Emphasis	3

FBMA	2120	Fundamentals of Financial Management/Business Plan Emphasis	3
FBMA	2121	Applications in Financial Management/Business Plans	3
FBMA	2130	Directed Study-Decision Making	2
FBMA	2131	Directed Study-Communications	2
FBMA	2132	Directed Studies in Modern Agricultural Technology	2
FBMA	2133	Directed Studies in Farm Business and/or Family Transition	2
FBMA	2134	Directed Study-Personnel Management	2
FBMA	2135	Directed Study-Enterprise Alternatives	2
		Total Credits	30

Applications in Farm Business Management, Certificate

Locations: Canby, Jackson, and Pipestone
Sites: Canby, Fulda, Granite Falls, Jackson, Lakefield, Luverne, Marshall, Mt. Lake, Okabena, Pipestone, Slayton, St. James, Truman, Tyler, Welcome, Worthington

This certificate program is designed to provide instruction that will expand on the foundation for financial management which was learned in the Essentials of Farm Business Management certificate. Students in this program will use accounting skills to record and evaluate data related to the profitability and longevity of their business. Education is primarily delivered in an individualized setting at the student's business or the students preferred location. Students will use data management, planning strategies, and a business analysis to successfully manage their farm business.

FBMT	2141	Interpreting and Evaluating Financial Data	4
FBMT	2151	Strategies in Farm System Data Management	4
FBMT	2161	Examination of the Context of Farm System Management	4
FBMT	2142	Interpreting Trends in Business Planning	4
FBMT	2152	Integrating System Information for Financial Planning	4
FBMT	2162	Refining Farm System Management Suggested Farm Business Management Electives	6
		Total Credits	30

Essentials of Farm Business Management, Certificate

Locations: Canby, Jackson, and Pipestone
Sites: Canby, Fulda, Granite Falls, Jackson, Lakefield, Luverne, Marshall, Mt. Lake, Okabena, Pipestone, Slayton, St. James, Truman, Tyler, Welcome, Worthington

This Certificate program is designed to provide instruction that will help to build a foundation for successful financial management of the farm business. Students in this program will use basic accounting

practices and goal setting to provide benchmarking information and a direction for the business. Education is primarily delivered in an individualized setting at the student's business or the students preferred location. Students use business records to provide information for completing a business analysis and initiate a financial trend analysis for sound decision-making.

FBMT	1211	Introduction to Farm Business Management	4
FBMT	1112	Foundations for Farm Business Management	4
FBMT	1121	Preparation for Farm Business Analysis	4
FBMT	1122	Implementing the System Management Plan	4
FBMT	1131	Managing and Modifying Farm System Data	4
FBMT	1132	Interpreting and Using Farm System Data Suggested Farm Business Management Electives	6
		Total Credits	30

Lamb and Wool Management, Diploma

Location: Pipestone

The Lamb and Wool Management Program is concerned with developing the sheep enterprise operators ability to organize and manage resources to meet family and business goals. Good management requires a sound knowledge of economic and scientific principles because they are the framework for a profitable sheep enterprise. Good management provides a perspective that considers the relationship of all parts to the whole farm business. Good sheep management requires knowledge of sheep production practices and animal science, as well as new technology developments in the field. The Lamb and Wool Management Program is concerned with the development of a person's knowledge of economic, management, and scientific principles and using them in a profit oriented decision making process that enables them to meet their goals.

Prerequisites: To be eligible for enrollment in Lamb and Wool Management courses a student must be a sheep producer or must secure the consent of the instructor.

Program Delivery: Curriculum is delivered through a combination of classroom, lab, on-farm instruction and individual instruction. This option is available only for students within 125 miles of Pipestone, Minnesota or through permission of the instructor.

LWMP	1001	Introduction to Sheep Management	1
LWMP	1002	Sheep Management Concepts	2
LWMP	1003	Pasture & Grazing Management	1
LWMP	1004	Predator Control Methods	2
LWMP	1101	Sheep Genetic Concepts	2
LWMP	1102	Genetic Selection Methods	1
LWMP	1201	Sheep Behavior & Handling Methods	1
LWMP	1202	Equipment and Facilities	2
LWMP	1301	Sheep Diseases	3
LWMP	1302	Preventative Health Programs	1

LWMP	1304	Basic Lamb Care Skills	1
LWMP	1305	Basic Sheep Care Skills	1
LWMP	1401	Lamb Marketing	2
LWMP	1402	Sheep Quality Assurance	1
LWMP	1501	Nutrition Requirements	2
LWMP	1502	Ewe Ration Formulation	1
LWMP	1601	Sheep Reproduction	2
LWMP	1602	Reproductive Management	1
LWMP	1701	Wool Characteristics	2
LWMP	1702	Wool Harvesting, Marketing, and Processing	1
		Total Credits	30

SBMT	1325	Problem Solving & Decision Making	2
SBMT	1330	Interpersonal skills for Supervisors	1
SBMT	1335	Work Teams	1
SBMT	1340	Time Management	1
SBMT	1345	Finance & Accounting for Non-Financial Managers	3

Additional 10 Credits chosen from Management and Supervision in Healthcare:

SBMT	1400	Employment	2
SBMT	1405	Customer Service	2
SBMT	1410	Personnel Supervision	4
SBMT	1415	Leadership	4
SBMT	1420	Corporate Compliance	2
SBMT	1425	Finance for Healthcare	3
SBMT	1430	Healthcare Industry Trends	1
SBMT	1435	Marketing in Healthcare	1
		Total Credits	23

Small Business Management, Diploma

Location: Granite Falls and Pipestone

The Minnesota Small Business Management Education Program is concerned with the organization of an entrepreneur's resources in such a way as to assist the family in meeting their family and business goals. Often these goals involve generating new profit. Good management requires a sound knowledge of economic principles because they are the framework for small business operation and organization. Good management ties all perspective, showing the relationship of all parts to one another, and to the whole small business. Management must understand various alternatives that can be used in decision making. Small business management instruction is concerned with the development of an entrepreneur's knowledge of economic principles and with the decision-making process.

For more information on Small Business Management go to: www.sbmprogram.org

Prerequisites: To be eligible for enrollment in Small Business Management courses, the student must be a small business operator or must secure the consent of the instructor.

SBMT	1110	Organization Planning	2
SBMT	1120	Business Systems	3
SBMT	1210	Financial Systems	3
SBMT	1220	Financial Management	3
SBMT	1230	Financial Analysis	3
SBMT	1312	Marketing Systems	3
SBMT	1320	Marketing Management	2
		Electives	20
		Total Credits	39

Supervisory Leadership in Management, Certificate

Location: Online

The Supervisory Leadership in Management certificate program will help the incumbent student prepare for career growth opportunities. This certificate program will enhance career success through sound leadership skills and management practices. The Internet platform will allow students to pursue their education without leaving their facility or placing undue hardships on their current positions and/or employment status. The curriculum will provide for independent practice and virtual role-playing, and the student will be able to interact with college instruction staff via e-mail and discussion groups.

SBMT	1310	Resolving Conflict	1
SBMT	1315	Principles of Supervisory Leadership	3
SBMT	1320	Creativity and Innovation	1

Customized Training Services

Customized Training Services offers short term, part time credit and clock hour courses, continuing education units, and customized training to individuals, businesses, industries and agencies. Customized Training Services provides access to a wide array of experts and consultants in many fields.

Courses are provided days, evenings and weekends. Training can be provided on-site, on any Minnesota West Community and Technical College campus, at the Minnesota West Marshall Center or at a convenient off-site meeting location.

Types of training/education provided:

- Training for new employees
- Retraining for existing employees
- Technical assistance
- Research and development for new training programs
- Continuing education for individuals

Customized Training Services Program Areas:

Services fall into 5 program areas:

- Computer Technology
- Management and Professional Development
- Manufacturing and Applied Technology
- Health and Wellness
- Public Safety

COMPUTER TECHNOLOGY:

Computer training enables an organization or individual to get the maximum productivity from a most important business tool, the computer. A mobile lap-top personal computer laboratory, instructor and training in various Windows applications is available, and training can be customized to meet company and individual needs. The campus locations and customized options put quality computer instruction within reach. In addition the Minnesota West Marshall Center has a fully equipped computer lab and classroom. The classes are offered at the campus sites or can be customized to target the specific applications and skill levels of employees.

MANAGEMENT AND PROFESSIONAL DEVELOPMENT:

Personal and professional growth is an important component in maintaining managers, management trainees, and skilled employees.

Customized Training Services provides the training foundation for:

- Organizational Development
- Performance Management
- Project Management

MANUFACTURING AND APPLIED TECHNOLOGY:

The training that is available through Manufacturing and Applied Technology include such areas as OSHA,

Safety, Welding, Automation Skills, Fluid Power Fundamentals, AutoCAD, Machine Tool, Manufacturing Practices and Quality Control, Contractors Continuing Education, Commercial Vehicle Inspection Recertification, Steam Boiler and much more.

OSHA and Safety:

OSHA and Safety training programs for businesses, industries, and municipalities are designed to meet or exceed standards set forth by regulatory agencies.

Welding:

Minnesota West's mobile welding unit has fourteen wire feed welding stations and has the capability of bringing welding and blueprint reading for welder training direct to the customer's doorstep.

HEALTH AND WELLNESS:

Minnesota West Community and Technical College offers diverse health programming for individuals, facilities, and persons seeking professional CEU's. Programs are offered on the various campuses or at work sites.

Today's health care personnel are challenged by increased technology and expanded levels of accountability. Programs are customized to work with all members of the health care team in an effort to assist them in meeting these challenges.

Continuing Dental Education:

Minnesota West provides continuing dental education for Dentists, Hygienists and Dental Assistants and is an approved sponsor for continuing dental education for the Minnesota Board of Dentistry and Dental Assisting National Board.

PUBLIC SAFETY:

Customized Training Services provides training to Fire and Rescue personnel as well as Law Enforcement officers within the service area. The wide range of training programs in these areas also provides unique opportunities for business and industry as well as municipalities.

Safety Programs:

First Aid and CPR courses are readily available or may be customized to meet an organization's needs. All courses have been designed to meet or exceed the recommendations of the American Heart Association, the American Red Cross, The National Safety Council, and the American Medical Association.

Fire and Rescue:

The wide range of training programs in Fire and Rescue offer unique opportunities for industry personnel as well as fire and rescue personnel in communities. This training is highly mobile and many courses encompass hands-on learning. The mobile Confined Space Training Simulator can be brought on-site to provide valuable training to municipalities as well as industries. Other mobile safety training units are also available. A training program can be designed that will meet OSHA and other state and federal requirements.

Law Enforcement and Personal Safety:

Minnesota West is a POST Board accredited educational institution for Law Enforcement continuing education. Training may be customized for Law Enforcement Agencies, Security Organizations, and Business and Industry.

MERIT Center:

Marshall Emergency Response & Industrial Training Center is located at 1001 Erie Road, Marshall, MN. The purpose of the MERIT Center is to provide a site and equipment for the training of emergency responders including fire fighters, city and county law enforcement personnel, emergency medical service personnel, regional emergency managers, business and industry personnel and other related persons in southwest-west central Minnesota. The city of Marshall owns the actual building site and Minnesota West Customized Training Services is mandated to provide the training through a number of venues at the site. The training is available as open enrollment classes or classes for specific companies and industries. Minnesota West personnel maintain offices at the site.

MINNESOTA WEST MARSHALL CENTER:

All Customized Training Services for Minnesota West Community and Technical College have been centralized at the Marshall Center. The Center is located at 344 West Main Street in downtown Marshall. The Center can provide highly specialized hour-based and credit based technical courses which are designed to upgrade the skills of the incumbent workforce in the area.

The Center is fully staffed with Customized Training coordinators and support staff, and it also includes a computer lab and classroom complex. For more information about the training possibilities offered through Minnesota West Customized Training Services, call the Marshall Center at 507-537-7051 or 1-800-576-6728.

Check out our web site at:
<http://training.mnwest.edu/>



COURSE DESCRIPTIONS

ACCOUNTANT (ACCT)		
ACCT 1102 4 Cr. College Accounting Concepts I An introduction to the fundamental accounting concepts and principles used to analyze and record business transactions. Topics include the accounting cycle, accounting for a merchandising business, accounting system design, receivables, and inventory methods.	ACCT 2100 4 Cr. Intermediate Accounting I This course is a comprehensive study of accounting theory and concepts with an analysis of the influence on financial accounting by various boards, associations, and governmental agencies. Prerequisite: ACCT 1103.	
ACCT 1103 4 Cr. College Accounting Concepts II Covers the analysis and recording of transactions related to partnerships, inventory methods, current and long-term liabilities, plant and intangible assets and corporate organization. Prerequisite: ACCT1102 College Accounting Concepts I.	ACCT 2101 2 Cr. Intermediate Accounting II A continuation of the comprehensive study of accounting theory and concepts. Prerequisite: ACCT 2100.	
ACCT 1110 3 Cr. Payroll Accounting Covers the various state and federal laws pertaining to the computation of payment of salaries and wages.	ACCT 2105 3 Cr. Auditing A study of the methods and procedures used to verify the completeness and accuracy of accounting records. Topics include professional ethics, the audit process, nature of evidence, internal control, audit sampling techniques, the audit examination, and audit reports.	
ACCT 1115 2 Cr. Computerized Accounting Applications I An introduction to the use of computers and related software used in the accounting function of the business environment. Topics include the accounting function of the business environment. Topics include general ledger accounting, payroll procedures, accounts receivable, and accounts payable. Prerequisite: ACCT 1102 or high school/college bookkeeping or accounting coursework.	ACCT 2110 4 Cr. Income Tax I An explanation and interpretation of the Internal Revenue Code as applied to individual and business returns. Computerized software will be used to prepare actual income tax returns.	
ACCT 1120 2 Cr. Spreadsheet Concepts and Applications The use of a computerized spreadsheet system for business applications. Topics include document creation, storage and retrieval, editing, printing, and file distribution.	ACCT 2115 4 Cr. Cost Accounting I A study of cost accounting as a management tool for planning, organizing, and controlling costs associated with the manufacturing process, whether using job costing or process accounting. Prerequisite: ACCT 1103.	
ACCT 1122 2 Cr. Database Concepts and Applications Utilization of a database system for business applications. Topics include electronic files, file creation, flexible stored procedures, fixed hard disk concepts, and software installation. Also included is networking and live center concepts.	ACCT 2120 3 Cr. Fund/Nonprofit Accounting This course focuses on the application of generally accepted accounting principles for state and local governmental units. Prerequisite: ACCT 1103.	
ACCT 1125 3 Cr. Business Law and Ethics An introduction to the principles of law and ethics as they apply to individuals and businesses.	ACCT 2125 2 Cr. Computerized Accounting Applications II This course is a continuation in the use of computers and related software used in the accounting function of a business. Prerequisite: ACCT 1103.	
ACCT 1135 2 Cr. Business Math Introduction to business applications and functions which commonly occur in business.	ACCT 2130 2 Cr. Intermediate Accounting III A comprehensive study of accounting theory and concepts. Prerequisite: ACCT 2101.	
	ACCT 2135 2 Cr. Internship Practical experience with a business utilizing skills/knowledge learned in accounting programs.	

ADMINISTRATIVE ASSISTANT (ADSA)

ADSA 1100 3 Cr.

College Keyboarding I

College Keyboarding I covers basic skill development and the use of a computer keyboard to produce various business documents including letters, envelopes, reports, memos, tables, and employment documents. In addition to formatting business documents, focus will be placed on keyboarding speed, accuracy, and proofreading skills.

ADSA 1105 3 Cr.

College Keyboarding II

College Keyboarding II covers production keyboarding using a computer to complete a variety of business applications. Business documents will be produced including letters, envelopes, reports, memos, tables, and forms. Also included is the continued development of keyboarding speed, accuracy, and proofreading skills.

ADSA 1111 3 Cr.

Office Management

This course covers general office principles, practices, and procedures in theory with practical applications. Various topics will be covered including: office equipment, computer skills, communication skills, administrative duties, 'typical' office duties, and personal and professional development.

ADSA 1116 2 Cr.

Machine Transcription

This course covers the use of computer equipment, transcription units, and word processing software to transcribe dictated business documents. Emphasis will be placed on preparing realistic forms and materials, building speed and accuracy, proofreading, correcting errors, using punctuation, grammar, and spelling rules, and using reference materials.

ADSA 1122 2 Cr.

Word Processing I

This course using a computer system with word processing software to perform basic word processing applications. Topics covered include enhancing and organizing text along with realistic word processing projects.

ADSA 1123 2 Cr.

Word Processing II

This course is a continuation of Word Processing I with a focus on increased proficiency in operating word processing software. Things covered in will be forms, tables, mail merging, graphics, outlines, and reports.

ADSA 1126 2 Cr.

Advanced Office Applications

Advanced Office Applications is a capstone course designed to integrate and reinforce the skills and knowledge learned in previous business courses in the Administrative Secretary program. Keyboarding skills, computer knowledge, transcription skills, and word processing skills will be utilized through the use of simulations or in-basket projects to give the student

experience in daily routines, making decisions, setting priorities, dealing with work pressure, developing interpersonal relationships, and becoming aware of work quality and quantity requirements. Project emphasis should develop the student's awareness of work flow and chain of command. Prerequisites or instructor approval: ADSA1100, ADSA1122, and ADSA1110

ADSA 1130 3 Cr.

Office Accounting Concepts

Office Accounting Concepts provides students with a basic knowledge of accounting concepts and procedures. The accounting cycle for service and merchandising businesses will be covered by analyzing business transactions, recording transactions in a variety of journals, preparing financial reports, and accounting for cash and payroll.

ADSA 1132 1 Cr.

Calculators

Introduces the development of the touch system on calculator keyboards and microcomputer number pad keyboards. Students will develop speed and accuracy using the touch system for the four basic arithmetic operations and solving business problems.

ADSA 1136 2 Cr.

Desktop Publishing

This class is designed to introduce the students to the concepts, terminology, techniques, and applications of desktop publishing. The student will integrate text and graphics to produce professional-quality publications.

ADSA 1145 3 Cr.

Supervisory Management

This course enhances participants to learn the skills required to effectively direct the work of others in the business world by working through people to develop and empower them. Important supervisory management concepts are stressed as well as how to apply the principles of management in the real world.

ADSA 1150 2 Cr.

Personal Finance

This course provides students with the basic concepts of personal financial management. It covers budgeting, consumer credit, personal financial planning, effective purchasing of consumer goods and services, insurance, investment, and retirement planning.

ADSA 1176 3 Cr.

Business Communications

This course covers oral and written communication skills needed in the professional work force.

ADSA 1180 2 Cr.

Records Management

This course covers the flow of records utilized for client/customer information processing.

ADSA 1190 Presentation Graphics This course covers the concepts of developing electronic slide shows using a computer application program. The keys to effective presentations are covered along with various printing techniques. This course covers more advanced presentation techniques including animation and sound. The basics of scanning and manipulation graphics are also covered.	2 Cr.	ADSM 1125 Medical Office Procedures II This course is a continuation of Medical Office Procedures I. Medical topics covered include: medical insurance, DRGS, HMOs, CPT and HICPICKS coding. This also covers the integration of medical office tasks: basics of computer operation, mail handling, medical document production, insurance forms completion, and making meeting and travel arrangements.	2 Cr.
ADSA 1195 Intro to Voice Recognition Software This course covers basic skill development and the use of voice recognition software. Topics covered include creating personal profiles; learning voice commands and proper techniques; and creating, proofreading, navigating, and editing documents.	2 Cr.	ADSM 1130 Medical Machine Transcription I This course begins teaching transcription of dictated medical material into a variety of usable medical documents. The emphasis is on authentic forms and material; building typing speed and accuracy; and proofreading and correcting errors.	2 Cr.
MEDICAL ADMINISTRATIVE ASSISTANT (ADSM)			
ADSM 1100 Medical Terminology I Word analysis, spelling, and usage of word roots, prefixes, suffixes, and abbreviations common to the medical profession. Emphasis on understanding, pronouncing, and spelling diagnostic terms.	2 Cr.	ADSM 1135 Medical Machine Transcription II A continuation of Medical Machine Transcription I. Transcription of dictated medical material into a variety of usable medical documents is continued, using word processing equipment. The emphasis is on experience with authentic medical material, continuing to build typing speed and accuracy, advanced editing, advanced proofreading, and enhancement of the ability to find and correct errors.	2 Cr.
ADSM 1105 Medical Insurance and Coding This course will provide an introduction to medical and dental claim forms preparation and processing. It will include CPT, ICD-9-CM, MCPC, and ADA coding, terminology, and forms preparation.	2 Cr.	ADSM 1137 Medical Machine Transcription III This advanced medical transcription course provides training in various medical and surgical specialty units.	1 Cr.
ADSM 1110 Anatomy & Physiology/Disease Conditions I This is an introduction to human anatomy and systems with emphasis on terminology, abbreviations, and diagnostic tests for the human body through study of diseases by anatomical systems. The emphasis is on terminology, abbreviations, and symptomatic, diagnostic, and operative terms.	2 Cr.	ADSM 1140 Applied Medical Terminology This course continues exploration of the meaning for Latin and Greek elements or word parts. This increased knowledge will enable you to interpret and understand complex medical terms, providing a basic knowledge of the language of medicine and an understanding of how complex medical terms are formed. Included will be pharmaceutical terms, generic, and brand name drugs, and abbreviations common to the medical profession.	2 Cr.
ADSM 1115 Anatomy & Physiology/Disease Conditions II This course is a continuation of human anatomy and disease with emphasis on terminology, abbreviations, and disease process. The study of diseases follows anatomical systems.	2 Cr.	ADSM 1145 Medical Filing This class provides an overview of the medical record and filing systems associated with medical applications, including computer concepts in the medical office or facility. Covered are the rules and procedures for indexing, filing, and retrieving documents in alphabetic, numeric, and color coded systems, including serial, terminal digit, and middle digit filing.	2 Cr.
ADSM 1117 Anatomy & Physiology/Disease Conditions This course covers the relevant structures, functions, and diseases of body systems. It emphasizes clinical applications and medical terminology. Emphasis will be placed on the signs, symptoms, diagnostic measures, and treatment regimens of diseases.	4 Cr.	ADSM 1155 Intermediate Medical Coding This intermediate course is intended for entry-level coders working in clinical health care settings and insurance offices whose activities require the use of ICD-9-CM, a statistical classification system for selecting diagnoses and the use of CPT, a procedural classification system. The course presents coding	2 Cr.
ADSM 1120 Medical Office Procedures I This course offers medical office careers information, with emphasis upon medical ethics, and professional liability. Additional topics covered include: medical receptionist tasks; working with patient files, medical records, word processing, and billing.	2 Cr.		

format and basic and specific coding principles. Exercises will be used to demonstrate requirements for accurate coding.

ADSM 1160 **Advanced Coding II** **3 Cr.**

This course is a continuation of Intermediate Medical Coding and is intended for entry-level coders working in clinical health care settings and insurance offices whose activities require the use of ICD-9-CM, a statistical classification system for selecting diagnoses. This course covers ICD-9-CM format, basic and specific coding principles.

AGRICULTURE (AGRI)

AGRI 1101 **Introduction to Animal Science** **3 Cr.**

Provides students with an introduction to animal science with an emphasis on the fundamental concepts of physiology, nutrition, animal breeding and management as applied to beef cattle, dairy cattle, poultry, sheep and swine production.

AGRI 1102 **Principles of Agronomy** **3 Cr.**

Explores the principles and practices of plant and related sciences as applied to increasing productivity and improvement of field crops. Emphasis is on crop selection and improvement through the breeding of crop varieties, seeds and seedlings, crop growth and development, crop production hazards, and the harvest and storage of field crops.

AGRI 1103 **Introduction to Soil Science** **3 Cr.**

Introduces students to the origin, formation, and classification of soils. This includes the physical, chemical, and biological properties of soils, soils as a medium for plant growth, elements, water, air, organic matter, and plant and animal life in the soil.

AGRI 1110 **Introduction to Horticulture** **3 Cr.**

Emphasizes the growth process in production of fruits, vegetables, flowers, lawns, trees, and shrubs. Studies include planning, preparation and care of home grounds. Fundamental concepts in plant identification, growth, culture, landscape and design are also studied.

AGRI 1121 **Dairy Technician** **2 Cr.**

This course provides for introduction to the Dairy Industry as a technician. The emphasis will be on employment skills and milking skills.

AGRI 1125 **Custom Application** **2 Cr.**

The Custom Application course is designed for the student pursuing a career in crop production or agronomy services area. The student will receive hands on instruction in the safe operation and calibration of custom sprayers and spreaders. The student will be prepared for and issued the Minnesota State Custom Application exams for categories A, C, & D; leading to licensure in those areas.

AGRI 1151 **Farm Records & Business Analysis** **4 Cr.**

Emphasizes the maintenance and analysis of farm records. Special attention is given to the use of the Minnesota Farm Account Book and the analysis procedure. Topics include calculation of earnings, efficiency factors, total business and enterprise analysis.

AGRI 1152 **Agricultural Marketing and Prices** **3 Cr.**

Explores the economics of agricultural marketing, organization of markets and marketing enterprises, marketing policy, and price trends of agricultural commodities.

AGRI 2201 **Principles of Animal Nutrition** **3 Cr.**

Covers the classification and function of nutrients, digestion, and utilization of feeds. This includes nutrient requirements for livestock and poultry, nutrient composition, and feeding standards. Prerequisite: AGRI 1101 or consent of instructor.

AGRI 2202 **Weed Control** **3 Cr.**

Surveys the principles and methods of weed control and the modes of action of herbicides.

AGRI 2203 **Soil Fertility and Fertilizers** **3 Cr.**

Explores the chemical elements in the soil and plants, soil testing and tissue testing, fertilizer and lime recommendations, and fertilizer nutrients.

AGRI 2204 **Intro to GPS/GIS** **3 Cr.**

This course is intended to serve as an introduction to GPS (Global Positioning Systems) and GIS (Geographical Information Systems) with an emphasis on agricultural uses and precision farming.

AGRI 2212 **Corn and Soybean Production** **3 Cr.**

Explores practices used in corn and soybean production, variety and hybrid selection, seed bed preparation and planting, fertilizer programs, water management, weed control, harvesting, storage and marketing.

AGRI 2214 **Machinery Principles and Management** **3 Cr.**

This course will cover the utilization of farm equipment from the purchasing of equipment and managing the costs to the operation and maintenance of agricultural equipment.

AGRI 2216 **Introduction to Meat Science** **3 Cr.**

Evaluates the principles of conformation, quality, and finish of animal carcasses. A comprehensive look at the meat industry. Studies include composition of meat animals, product identification, nutrient values, pricing and marketing.

AGRI 2235 1-3 Cr.
Special Topics in Agriculture
Covers a wide range of issues of current interest. Topics will be chosen to meet the needs of students. the class may be retaken for credit if the topic varies.

AGRI 2251 4 Cr.
Principles of Farm and Ranch Management
Emphasizes utilization of land, labor, capital and management in the organization and operation of a farm. Includes the organization of a farm and the decision-making processes involved in establishing a farm business. Analyzing, budgeting, and using principles of economics are considered in the decision making process.

ART (ART)

ART 1101 3 Cr.
Beginning Drawing
Combines work in various drawing mediums. This includes experimentation with traditional and contemporary styles as well as problems in perspective, composition, and imagination. This course is also offered on demand.

ART 1103 1 Cr.
Display and Exhibition
Exposes the student to organization and management as well as the design and hanging of gallery displays. Students will be responsible for the pre-organization and the actual arrangement of displays. The courses will cover both theory and practical experience with the management of a gallery.

ART 1114 3 Cr.
Watercolor
Introduces traditional and contemporary techniques of transparent watercolor with practical experiences in solving painting problems in various styles.

ART 1115 3 Cr.
Beginning Painting
Introduces traditional and contemporary painting techniques. Students will explore their own visual communication style. This course is offered on demand spring semester.

ART 1118 3 Cr.
Arts and Crafts
Teaches basic skills using art materials and supplies. Encourages a creative approach to the application of these skills through a variety of techniques. Students will learn appropriate methods of presenting art experiences to individuals with various learning levels and/or disabilities. A resource book containing step by step methods and procedures of instructing others will be produced by each student. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

ART 1120 3 Cr.
Art Appreciation
Offers an investigation into the creative process as it exists for the artist, the art historian, and the viewer. Students will be exposed to the history of art, the

technical aspects of art, and to the creative mental process which takes place in both the making and viewing of art. This course is also offered on demand. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

ART 1124 3 Cr.
Introduction to Ceramics
Creating clay objects using the potter's wheel and hand building techniques. Students also learn to operate a kiln and apply glaze finishes. This course is also offered on demand.

ART 2201 3 Cr.
Intermediate Drawing
Uses materials of ART 1101 with increased emphasis on individual creativity and artistic development. Prerequisite: ART 1101. This course is also offered on demand.

ART 2215 3 Cr.
Intermediate Painting
Emphasizes technical and creative application of paint. Students will be encouraged to explore using a wide variety of painting surfaces, techniques and subject matter. Prerequisite: ART 1115. This course is also offer on demand.

ART 2224 3 Cr.
Intermediate Ceramics
Reinforces beginning design experiences by combining methods of construction. Greater emphasis will be placed on glazing and finishing. Prerequisite: ART 1124. This course is also offered on demand.

ART 2230 3 Cr.
Computer Graphics
Introduces the student to computer graphics. It is a survey course with hands on experience in painting, graphic and drawing programs. Prerequisite: Should have prior Macintosh knowledge.

ART 2232 3 Cr.
Advanced Computer Graphics
In this course, students will explore the creative Photoshop techniques of image blending, shadows, image enhancement, type, and background effects. We will also focus on Web applications such as: interface design, slicing, rollovers, animations and optimization.

ART 2235 1-3 Cr.
Special Topics
Covers a wide range of art topics and media. topics will be chosen to meet the needs of art students. the class may be retaken for credit if the topic varies.

ART 2240 3 Cr.
Art History
Includes the study of painting, sculpture and architecture from the Paleolithic (Stone Age) period through the Early Renaissance. This course is also offered on demand.

ART 2245 **Art History II** **3 Cr.**
Includes the study of painting, sculpture and architecture from Early Renaissance through the Romantic Movement. This course is also offered on demand.

AUTOMOTIVE TECHNOLOGY (AUTO)

AUTO 1100 **Introduction to Transportation** **2 Cr.**
The correct procedures for servicing and maintaining vehicles is covered in this course. Shop safety, use of service manuals and bulletins, writing repair orders, and parts requisitions will be addressed.

AUTO 1111 **Electrical** **4 Cr.**
The basic fundamentals of electricity and electronics, sources of electricity, circuits, magnetism, resistance, coils, capacitance, instruments, diodes, and solid-state devices are presented. Emphasis is placed on the testing and repair of the electrical systems, starter motors, alternators, and regulators. Students will identify parts, operation, testing, and overhaul procedures.

AUTO 1120 **Air Conditioning** **2 Cr.**
Covers the theory, principles, diagnosis, testing, and repairs of the air conditioning systems operations.

AUTO 1121 **Advanced Heating & Air Conditioning** **2 Cr.**
This course covers the theory, principles, diagnosis, testing, and repairs of the air conditioning and heater systems. Also covered is the automatic temperature control systems and operations.

AUTO 1126 **Steering and Alignment** **4 Cr.**
Covered is power and manual steering gears, rack and pinion systems, power steering pumps, suspension systems, and alignment.

AUTO 1131 **Brakes** **4 Cr.**
Students learn the basic principles of brakes, hydraulic systems, disc and drum brakes, parking brakes and power assist units. Emphasis will be placed on operation, diagnosis, and repair of various types of braking systems.

AUTO 1136 **Engine Technology & Lab** **5 Cr.**
Covers the fundamentals of internal combustion engine operation, repair, and maintenance, the procedures for removal, replacement, diagnosing, rebuilding, and assembly. Proper tool and equipment application and failure diagnosis are emphasized in this course.

AUTO 1140 **Special Projects** **1 Cr.**
This course encourages students to identify, develop, explain, and complete their own automotive projects. The special projects course must receive the approval

of the instructor prior to implementing the project. Special projects must challenge the student's current level of technical skills.

AUTO 1145 **Engine Performance I** **2 Cr.**
This course enables students to master the proper techniques necessary to diagnose and repair computer systems by using diagnostic computer systems and scanners. This course will also cover emission control components testing and repair.

AUTO 1195 **Commercial Drivers License** **2 Cr.**
This course covers all the requirements the student needs to get a commercial drivers license. The student will learn how to use the mirrors when backing up. The student will learn how to back a trailer up using mirrors. The student will learn how to use a stick shift and two-speed axle. Student will also learn the rules of the road when in a big truck.

AUTO 2106 **Automatic Transmissions** **5 Cr.**
This course covers the basic theory of torque converters, planetary gears, multiple disc clutches, one-way clutches, bands, servos, accumulators, and hydraulics. The class will use various transmissions to illustrate basic principles of operation. Students complete a hands-on lab class in which various transmissions and transaxles are overhauled, adjusted, and bench tested.

AUTO 2112 **Manual Drive Train & Axles** **5 Cr.**
This course will prepare students with the necessary skills to diagnose and repair manual driveline components. This course covers standard automotive and light truck clutches, driveline, differential/4x4 and manual transmissions/transaxles. The clutch section includes design, adjustment, overhaul, diagnosis and repair of mechanical and hydraulic systems. The driveline section includes phasing alignment and balance. The manual transmission/transaxle section teaches the operation theory and repair.

AUTO 2121 **Engine Performance II** **5 Cr.**
This course will prepare students with the necessary skills to diagnose and repair all systems related to engine performance. It teaches the theory and repair of automotive engine systems. It includes ignition systems, emission controls, electronic engine controls, and engine performance diagnosis.

AUTO 2122 **Engine Performance III** **5 Cr.**
Prepares students with the necessary skills to diagnose and repair all systems related to engine performance. It teaches the theory and repair of automotive engine systems. It includes ignition systems, emission controls, electronic engine controls, and engine performance diagnosis.

AUTO 2135 **3 Cr.**

Ford Computer Controls and Fuel Injection

Content covers the theory and operation of the Ford Electronic Engine Controls(EEC) and Ford CFI, EFI, and SEFI fuel injections systems. Diagnosis and repair will include EEC I, II, III, IV, and MCU systems with main emphasis on the EEC IV system, including self-test, pin-point testing and intermittent diagnosis.

AUTO 2145 **5 Cr.**

Body Computer Controlled Electrical Systems

Students learn the advanced theory of operation, diagnosing and repair of electrical components such as power windows, power seats, ABS brakes, power steering, automatic computer control transmission, A/C climate control, theft deterrent systems, and chassis electronics control systems. Prerequisite: AUTO 1145 Engine Performance I

AUTO 2160 **6 Cr.**

Special Projects

This course is intended to provide training in servicing and maintaining of vehicles. The class will stress shop safety and the proper use of personal safety equipment. The student will work on a number of specialized projects relating to the auto industry.

AUTO 2190 **4 Cr.**

Summer Internship

The automotive summer internship class provides a good overview of what has been covered in the classroom by seeing the way these principles are put to work in the dealership. Hands-on experiences allow the student to disassemble, inspect, evaluate, repair and adjust, and reassemble key elements of the automobile systems.

AVIATION (AVIA)

AVIA 1100 **4 Cr.**

Private Pilot Ground School

Provides students with information and skills needed to pass the Airman Private Pilot Written Examination Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

BIOLOGY (BIOL)

BIOL 1100 **3 Cr.**

Survey of Biological Science

Introduces major concepts of biology which include cell structure and function, reproduction, development, interrelationships among organisms, classification, heredity, adaptation and evolution. Special emphasis will be placed upon understanding of the science of biology and its significance to everyday life.

BIOL 1110 **4 Cr.**

Principles of Biology

This course investigates fundamental principles of biology with special emphasis on the composition of living things and living systems, the chemistry of living things, natural selection, cell structure and function, metabolism emphasizing bioenergetics and biosynthesis, the cell cycle, and genetics. Prerequisite:

STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

BIOL 1115 **3 Cr.**

Human Biology

Emphasizing the human, this course will cover some of the fundamental topics in biology. Students will explore the structure and function of healthy human body systems and investigate numerous abnormalities and disease states. Additional topics will include human development, aging, human genetics, DNA technology, genetic engineering, biotechnology, and ecological interactions. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

BIOL 2201 **4 Cr.**

Human Anatomy

This course covers structures of the human body from the cellular to organ system level. Includes study of all structures of organ systems. Prerequisite: BIOL 1110 or BIOL 1115 or consent of the instructor.

BIOL 2202 **4 Cr.**

Human Physiology

Introduces the functions of the organ systems of the human body. Laboratory experience will include tests and hands on practical lab experiments. Prerequisite: BIOL 2201.

BIOL 2220 **4 Cr.**

Animal Biology

Investigates animal taxonomy, morphology, physiology, evolution and ecology. Laboratory exercises emphasize the structure and function of animals representing the major animal phyla. Prerequisite: BIOL 1110.

BIOL 2230 **4 Cr.**

Plant Biology

Covers the fundamental concepts of plant biology, including plant diversity, taxonomy, morphology, physiology, development, and reproduction. Other topics which will be covered include: viruses, bacteria, and fungi. Laboratory exercises deal with plant, bacteria, and fungi structure and function. Prerequisite: BIOL 1110.

BIOL 2235 **1-3 Cr.**

Special Topics in Biology

Covers a wide range of issues of current interest. topics will be chosen to meet the needs of students. This class may be retaken for credit if the topic varies.

BIOL 2240 **3 Cr.**

Genetics

Covers the fundamentals of plant and animal genetics and includes the study of modes of inheritance, mechanisms of gene action, human genetics, and the behavior of genes in populations. Prerequisite: BIOL 1110.

BIOL 2245 2 Cr.
Medical Terminology

Provides students in any of the health science disciplines or pre-professional studies with working knowledge of the terminology used in the health professions. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

BIOL 2270 4 Cr.
Microbiology

Introduces students to the science of microorganisms, including bacteria, viruses, fungi, pathogenic protozoans and multi-cellular organisms. Laboratory experience will introduce students to basic microbiological apparatus, tests, and techniques. BIOL 1110 and CHEM 1101 or 1150. One of these courses are recommended.

BIOTECHNOLOGY (BIOT)

BIOT 1101 3 Cr.
Introduction to Biotechnology

Introduces the field of biotechnology and its applications in industry and agriculture. Components will consist of lectures coordinated to labs, which demonstrate the application of this science to this emerging field.

BIOT 2210 4 Cr.
Biotechnology Methods I

This course will introduce the student to the equipment commonly used to support a modern biologics lab. Topics will include instrument care and calibration, laboratory records and statistics, media and product preparation, GMP/GLP regulations, governmental regulations and methods for isolating and purifying targeted biological molecules.

BIOT 2220 4 Cr.
Biotechnology Methods II

The second in a series of two which extends the concepts and theories from Biotechnology I and applies these techniques to small and large scale production. Areas covered will include cell culture, immunoassays, fermentors, inventory control and quality control.

BIOT 2205 3 Cr.
Molecular and Cellular Biology

This course will cover the cellular functions and molecular structures of both prokaryotic and eukaryotic organisms. Topics will include DNA, RNA and protein synthesis, DNA replication, recombination and insertion methods, isolation and purification methods of biological molecules, principles of immunology and virology, and DNA technology.

BUSINESS (BUS)

BUS 1101 4 Cr.
Introduction to Business

Provides students with vital exposure to the major business functions in a dynamic free enterprise environment. The course offers students relevant exposure to background information necessary to execute decision-making in a multitude of business

specialties. Fundamentals are emphasized in such areas as management, marketing, financing and information systems.

BUS 1104 3 Cr.
Business Mathematics

Emphasizes mathematical concepts through practical applications in business situations covering percentages in business (mark-ups, discounts), payroll and taxes, finance charges, inventory and depreciation.

BUS 2200 3 Cr.
Introduction to Management Information Systems

Develops a broad understanding of MIS concepts by studying the basic principles and techniques of developing computer-based information systems for management decision-making and problem solving. The fundamental concepts of organization, management information and decision systems will be presented and discussed in class. Advanced spreadsheet commands and functions will be used for case studies. Prerequisite: CSCI 1102. Recommend CSCI 2220 or consent of instructor.

BUS 2201 4 Cr.
Principles of Accounting I

Teaches the basics that are the prerequisites to all other courses in accounting. Included is an introduction to the accounting system; the processing of accounting data, the purposes and construction of different types of financial statements, and the development of double-entry accounting theory and techniques.

BUS 2202 4 Cr.
Principles of Accounting II

Continues Accounting I. Transactions advance from sole proprietorship to partnership and corporate account practices. Examines corporations and stockholders equity. Includes accounting as a planning, analysis, and control tool facilitating the decision-making process of management. The analysis and comparison of financial statements are emphasized. Prerequisite: BUS 2201

BUS 2221 3 Cr.
Principles of Management

Studies the general principles of management planning, organizing, staffing, directing and controlling the establishment. Emphasis is placed on the development of goals, policies, and systems necessary to coordinate all resources of an organization to achieve objectives. The importance of adequate managerial communication and motivation in accomplishing specific purposes, and the decision-making and problem-solving process are emphasized.

BUS 2230 3 Cr.
Principles of Marketing

Analyzes the role and importance of marketing as a directing force in a business organization and its relationship to our society. Emphasis is placed on principles, methods, and problems involved in the marketing operations of the firm, including

development, pricing, marketing channels, and promotion.

BUS 2232 3 Cr.
Professional Selling

Emphasizes the role and nature of professional selling and the total marketing and promotional effort in accomplishing the objectives of a business enterprise. The principles, practices, and psychology of salesmanship are stressed with a study of customer buying/behavior/motivational theories.

BUS 2233 3 Cr.
Advertising

Studies the role of advertising and its relationship to the total promotional and marketing efforts of any organization selling goods/services/ideas. Emphasis is placed on selecting the right appeals, layout, and media in reaching the target market. The total communication process is studied in light of various consumer psychology/behavioral theories.

BUS 2241 3 Cr.
Business Law

Involves the study of the practical aspects of contracts, negotiable instruments, agency, and other legal matters of importance to business men and women. The proper procedures in connection with adequate evidence in cases of legal proceedings will be considered. Business ethics are an integral part of every aspect of law.

BUS 2242 3 Cr.
Business Communications

Covers theory and offers practice in the fundamentals of good business communications. Emphasis is placed on the construction of effective (and positive) business letter writing. Resume writing, cover letters, interviewing techniques, memos and reports are also integral parts of the course. Prerequisite: ENGL 1101 or consent of instructor.

BUS 2275 3 Cr.
Human Resource Management

Provides an analysis of the importance of personnel management in accomplishing the established objectives of a business. Utilization of human resources is emphasized. Management's proper relationship with labor unions, governmental authorities, and the total community is studied.

COMPUTER AIDED DRAFTING SCIENCE (CADS)

CADS 1121 4 Cr.
Technical Drafting I

Designed for students enrolled in an engineering program, who need to learn the basic concepts and skills of mechanical drawing and descriptive geometry. Mechanical Drafting fundamentals will be presented, along with an explanation of standard drafting practices. This course will work with AutoCAD I and II, although there is no prerequisite for taking this course. All drawing will be on CADD stations, however, drafting tools and practices will be briefly covered. Specific topics covered include Geometric Construction, Multiviews, and Auxiliary Views.

CADS 1141 4 Cr.
Technical Drafting II

Designed to build on the knowledge acquired in Technical Drafting I and apply these concepts. More advanced techniques and skills are stressed. The student will learn to prepare fully dimensioned detail drawings based on ANSI/ASME standards. Special emphasis will be placed on sectioning techniques and accuracy. Specific topics covered include Geometric Tolerancing, Mechanisms: Linkages, Cams, Gears, and Bearings, Belt and Chain Drives, Working Drawings, Pictorial Drawings, Welding Process and Representation, and Fluid Power. Other areas studied include Industrial Process Piping, Structural Drafting with Basic Architectural Applications, Civil Drafting, Heating, Ventilating, and Air Conditioning, Electrical and Electronic Schematic Drafting, and Engineering Charts and Graphs. All drawing will be completed using computer-aided drafting and design.

CADS 2110 4 Cr.
Auto CAD Level I

Through a combination of lecture, hands-on exercises and drawing problems, this course introduces the student to computer-aided design/drafting with AutoCAD 2000. The AutoCAD topics covered in this level I course include: an introduction to AutoCAD features, starting and setting up drawings, point coordinate entry methods, creation of basic 2D drawing objects, layer management, linetypes and colors, selection sets, object snap modes, AutoSnap, polar tracking, object snap tracking, construction techniques, creating and managing text objects, editing geometry, display control, and drawing inquiry methods. This basic knowledge is needed prior to specializing in a certain area of drafting such as mechanical, civil, electrical, architectural or structural.

CADS 2120 4 Cr.
Auto CAD Level II

Designed to build on the skills acquired in the AutoCAD Level I class, this course introduces the student to both basic and advanced dimensioning and hatching techniques. The AutoCAD topics covered in this Level II course include using the geometry calculator and selection filters, working with AutoCAD files, continued use of proper ergonomic practices, setting up user profiles, drawing and editing polylines, multilines, splines, dimensioning techniques, and hatching. Prerequisite: AutoCAD Level I or equivalent experience approved by the instructor.

CADS 2130 4 Cr.
Auto CAD Level III

Designed to build on the skills acquired in the AutoCAD Level I & II classes, students are introduced to advanced AutoCAD drafting concepts and 3-dimensional drawing utilizing AutoCAD 2002 or a current version. The topics include: creation and management of symbols and symbol libraries, using externally referenced data, understanding model space, layout (paper space), viewport specific layer control, assignment of block attributes, automating the creation of a bill of materials, multiview drawing layout concepts plus isometric drafting techniques and many

areas of 3-dimensional drawing in AutoCAD 2002 or a current version. Prerequisite: AutoCAD Level II or equivalent experience with approval from the instructor.

CADS 2132 4 Cr.
Auto CAD Level IV

Designed to build on the skills acquired in the AutoCAD Level I, II, and III courses. This course introduces the student to more advanced AutoCAD drafting concepts and 3-dimensional drawing with AutoCAD 2000. Topics include: solid display and inquiry, advanced solid editing in solid modeling, and enhanced use of 3D with emphasis on application projects to gain hands on use of 3D and create final projects to have available for use to display to prospective employers. Also explores the use of Mechanical Desktop.

CADS 2165 2 Cr.
CAD Special Problems I

This course provides students the opportunity for learning experiences to meet their special needs. This is an open lab which will give additional time for students to work with drafting equipment on projects that are relevant to other course work or interests. This course is subject to Advisor approval.

CADS 2170 3 Cr.
CAD Special Problems II

This course provides students the opportunity for learning experiences to meet their special needs. This is an open lab which will give additional time for students to work with drafting equipment on projects that are relevant to other course work or interests. This course is subject to Advisor approval.

CADS 2175 4 Cr.
CAD Special Problems III

This course provides students the opportunity for learning experiences to meet their special needs. This is an open lab which will give additional time for students to work on projects that are relevant to other course work or interests. This course is subject to Advisor approval.

CADS 2180 2 Cr.
CAD Internship I

This course provides an opportunity to apply the knowledge and skills learned in a lecture/lab setting to the workplace. This course also recognizes the value of students working alongside engineers and draftsman and gives credit for those experiences.

CADS 2185 3 Cr.
CAD Internship II

This course provides an opportunity to apply knowledge and skills learned in a lecture/lab setting to the workplace. This course also recognizes the value of students working alongside engineers and draftsman and gives credit for those experiences.

CADS 2190 4 Cr.
CAD Internship III

This course provides an opportunity to apply knowledge and skills learned in a lecture/lab setting to the workplace. The course also recognizes the value

of students working alongside engineers and draftsman and gives credit for those experiences.

(CAOR)

CAOR 1101 2 Cr.
First Year Seminar-Becoming a Master Student

Explores behaviors, attitudes, skills, and information necessary to achieve college success. Topics may include time management, goal setting, test taking strategies, note taking techniques, critical thinking skills, budgeting, memory, learning styles, diversity, relationships, decision making (including values clarification, information gathering, and risk taking), and wellness issues among others. Emphasis is placed on applying skills to other classes. National data indicates that students who participate in seminars like this are more self-confident and more likely to persist in their studies.

CAOR 1111 1 Cr.
Career Awareness and Preparation for Employment

Assists students who have not made a career choice as well as those whose purpose is to develop job survey sheets. The course is divided into three major areas—self awareness, occupational exploration, and developing job seeking skills. The self-awareness unit is further divided into four sub-units where one's interest, skills, values, and lifestyle preference are explored. The occupational exploration unit covers the topics of sources of employment and developing data sheets and resumes. The job seeking section includes making the initial contact with the employer and developing and interviewing skills.

CAOR 2235 1 Cr.
Special Topics

Introduces students to specialized areas of career orientation and personal development. The class may be retaken for credit if the topic varies.

CHILD DEVELOPMENT (CDEV)

CDEV 1200 3 Cr.
Professional Relations

This course explores career opportunities for working with children in a variety of child development programs. This course also examines job requirements, duties, regulations, and issues, skills, and personal characteristics for becoming successful professionals in early childhood settings.

CDEV 1240 3 Cr.
Family and Community Relations

This course will guide students in learning how to develop positive relationships with families of varied racial, economic, and cultural backgrounds. Students will examine the importance of the family/early childhood staff relationship and study methods of effective communication. Community organizations and networks which support families will be studied.

CDEV 1262 2 Cr.
Creative Activities

Students will explore means of developing children's creativity in art, music, drama. Students learn to

design age-appropriate activities with paints, paper, sculpture, wood, chalk, recyclables, song, dance, instruments, puppets, and related materials.

CDEV 1266 **1 Cr.**
Foundations of Child Development I Lab

This course provides an overview of typical and atypical child development across cultures, from prenatal to school age including physical, social, emotional, language, cognitive, aesthetic, and identity development. It integrates developmental theory with appropriate practices in a variety of early childhood and education settings. Emphasis is on application of theory in a variety of Early Childhood settings. It must be taken concurrently with HSER 1266.

CDEV 1268 **2 Cr.**
Children's Health, Nutrition and Safety Lab

This course examines how to provide a healthy and safe environment while providing proper nutrition to young children. It sets high-quality expectations regarding policies, procedures, healthful environments, sanitation standards, and preventative care. This course also examines the responsibilities of a mandated reporter of child abuse and neglect. Must be taken concurrently with HSER 1268.

CDEV 1269 **2 Cr.**
Guidance, Managing the Physical & Social Environment Lab

This course provides an exploration of the physical and social environments that promote learning and development for young children. It includes child guidance techniques for individual and group situations. Emphasis is placed on problem-prevention strategies, positive child guidance methods, and strategies to help children develop self-control. Emphasis is on the application of child guidance methods in a variety of early childhood settings. Must be taken concurrently with HSER 1269.

CDEV 1316 **3 Cr.**
Foundations of Child Development II

This course provides an overview of child development theory in home or center-based settings. Students will integrate knowledge of developmental needs, developmentally appropriate environments, effective caregiving, teaching strategies and observation methods.

CDEV 1340 **3 Cr.**
Planning and Implementing

This course examines the role of the teacher in early childhood settings. It applies the knowledge of child development as it relates to individual children, communities, curriculum, and communication activities.

CDEV 1510 **3 Cr.**
Internship

This course provides an opportunity to apply knowledge and skill in an actual child development setting. Students will observe and assess children's behavior, facilitate free choice play, implement adult-directed learning experiences, and maintain professional relationships.

CDEV 2560 **3 Cr.**
Language & Literature Learning Experiences

This course provides an overview of language and literacy learning experiences in either home or center-based settings. Students integrate knowledge of child development, learning environments, and teaching methods to promote whole language, conversation, literature, literacy, and bi-lingualism.

CHEMISTRY (CHEM)

CHEM 1100 **3 Cr.**
Introduction to Chemistry

Covers the metric system, atomic structure, periodic law, formulas, nomenclature, chemical bonding, chemical equations, solutions, acids, bases, and a little nuclear chemistry. This course is designed for students who are not planning to major in the science field. It can be used as a stepping stone to get ready for CHEM 1101.

CHEM 1101 **4 Cr.**
General Inorganic Chemistry I

Introduces students to fundamental concepts of chemistry, equations and reactions, stoichiometry, the periodic table and properties, atomic structure, molecular orbitals, hybridization, gas laws, solutions, colloids and active metals. Prerequisite: High school Algebra or MATH 0099, or concurrent enrollment in MATH 0099 and high school Chemistry.

CHEM 1102 **4 Cr.**
General Inorganic Chemistry II

Continues CHEM 1101 with emphasis on chemical kinetics, equilibrium, acids and bases, ionic equilibria, solubility products, electrochemistry (Redox), coordination compounds, transition elements and nuclear chemistry. Prerequisite: CHEM 1101.

CHEM 1150 **4 Cr.**
Survey of Chemistry

Prepares students in pre-health science programs requiring one course of chemistry. The specific intent of the course is to provide the necessary chemistry background for students to proceed into introductory survey courses of such areas as biochemistry, microbiology and physiology; as well as to furnish a broader and deeper basis for understanding the related techniques and problems in today's society. Selected topics given special emphasis are: state, properties and phase changes, acid-base concepts, use of pH, aqueous equilibria, families of carbon compounds, typical organic reactions, and macromolecules of biological importance.

CHEM 2201 **5 Cr.**
Organic Chemistry I

Studies the chemistry of carbon and its compounds with emphasis on structure, properties, reactions of alkanes, alkenes, dienes, alkynes, alkyl halides, alcohols, cyclic hydrocarbons. Includes mechanisms and stereochemistry. Prerequisite: CHEM 1101.

CHEM 2202 5 Cr.

Organic Chemistry II

Continues CHEM 2201 with emphasis on benzene, aromatic substitution reactions, aldehydes, ketones, carboxylic acids, amines, phenol, carbohydrates, amino acids and proteins. Prerequisite: CHEM 2201.

COSMETOLOGY (COSM)

COSM 1100 4 Cr.

Preclinic Introduction

Provides an introduction to cosmetology, nail technology or skin care, including professional image, Minnesota laws and rules, safety, sanitation, anatomy, electricity and light, and chemistry. This course will contribute 80 hours towards licensure. The State of Minnesota mandates the hours to go toward the hour requirements.

COSM 1105 4 Cr.

Preclinic Hair Care

This course provides elementary hair service skills including trichology, shampooing, conditioning, cutting and styling. This course will contribute 80 hours towards licensure. The State of Minnesota mandates the hours to go toward the hour requirements. Prerequisite: completion of or concurrent enrollment in COSM1100.

COSM 1110 4 Cr.

Preclinic Nail Care

This course provides an introduction to nail care including manicuring, pedicuring, and artificial nails. This course will contribute 80 hours towards licensure. The State of Minnesota mandates the hours to go toward the hour requirements. Prerequisite: completion of or concurrent enrollment in COSM1100.

COSM 1115 3 Cr.

Preclinic Chemical Control

This course provides an introduction to cosmetology chemicals and their applications. This includes curl reformation--permanent waving, soft curl perming, and chemical relaxing. This course will contribute 64 hours towards licensure. The State of Minnesota mandates the hours to go toward the hour requirements. Prerequisite: completion of, or enrollment in COSM1105 and COSM1110.

COSM 1120 3 Cr.

Preclinic Skin Care

This course provides an introduction to dermatology, facials, and make-up. This course will contribute 80 hours towards licensure. The State of Minnesota mandates the hours to go toward the hour requirements. Prerequisite: completion of, or concurrent enrollment in COSM1100.

COSM 1125 3 Cr.

Preclinic Hair Color

This course provides an introduction to temporary, semi-permanent and decolorization hair color services. This course will contribute 80 hours towards licensure. The State of Minnesota mandates the hours to go toward the hour requirements. Prerequisites:

successful completion of, or concurrent enrollment in COSM1115.

COSM 1130 4 Cr.

Advanced Hair Care

This course will provide students with an opportunity to develop the practical skills necessary for entry-level salon work concentrating on chemical hair control, safety procedures and sanitation, hair shaping, hairstyling, hair coloring, thermal curling, shampooing, scalp and hair conditioning, manicuring, artificial nails and skin care, facials and makeup. This course will also provide lecture hours concentrating on hair cutting and styling. This course will contribute 96 hours towards licensure. The State of Minnesota mandates the hours to go toward the hour requirements. Prerequisites: successful completion of, or concurrent enrollment in preclinic courses.

COSM 1135 4 Cr.

Salon Preparation

This course will provide students with an opportunity to develop the practical skills necessary for entry-level salon work concentrating on chemical hair control, safety procedures and sanitation, hairshaping, hairstyling, haircoloring, thermal curling, shampooing, scalp and hair conditioning, manicuring, artificial nails and skin care, facials and makeup. This course will also provide lecture hours concentrating on salon management, Minnesota Cosmetology Laws and Rules, communication skills and retail operations. This course will contribute 96 hours towards licensure. The State of Minnesota mandates the hours to go towards the hour requirements. Prerequisites: successful completion of, or concurrent enrollment in preclinic courses.

COSM 1140 4 Cr.

Clinic I

This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work.

COSM 1145 4 Cr.

Clinic II

This course will provide students with an opportunity to develop the practical skills necessary for entry-level salon work concentrating on chemical hair control, safety procedures and sanitation, hair shaping, hairstyling, hair coloring, thermal curling, shampooing, scalp and hair conditioning, manicuring, artificial nails and skin care, facials and makeup. This course will also provide lecture hours concentrating on hair cutting and styling. This course will contribute 96 hours towards licensure. The State of Minnesota mandates the hours to go toward the hour requirements. Prerequisites: successful completion of, or concurrent enrollment in preclinic courses.

COSM 1150 4 Cr.

Clinic III

This course will provide students with an opportunity to develop the practical skills necessary for entry-level salon work concentrating on chemical hair control, safety procedures and sanitation, hair shaping,

hairstyling, hair coloring, thermal curling, shampooing, scalp and hair conditioning, manicuring, artificial nails and skin care, facials and makeup. This course will also provide lecture hours concentrating on hair cutting and styling. This course will contribute 96 hours towards licensure. The State of Minnesota mandates the hours to go toward the hour requirements. Prerequisites: successful completion of, or concurrent enrollment in preclinic courses.

COSM 1155 **3 Cr.**
Clinic IV

This course will provide students with an opportunity to develop the practical skills necessary for entry-level salon work concentrating on chemical hair control, safety procedures and sanitation, hair shaping, hairstyling, hair coloring, thermal curling, shampooing, scalp and hair conditioning, manicuring, artificial nails and skin care, facials and makeup. This course will also provide lecture hours concentrating on thermal pressing, artificial hair care, shampooing, conditioning/scalp care and draping. This course will contribute 96 hours towards licensure. The State of Minnesota mandates the hours go toward the hour requirements. Prerequisites: successful completion of, or concurrent enrollment in preclinic courses.

COSM 1160 **4 Cr.**
Clinic V

Provide students with an opportunity to develop the practical skills for entry-level salon work concentrating on chemical hair control, safety procedures and sanitation, hair shaping, hairstyling, hair coloring, thermal curling, shampooing, scalp and hair conditioning, manicuring, artificial nails and skin care, facials and makeup. It will contribute 96 hours towards licensure. The State of Minnesota mandates the hours to go toward the hour requirements. Prerequisites: successful completion of, or concurrent enrollment in preclinic courses.

COSM 1165 **4 Cr.**
Clinic VI

This course provides the students with an opportunity to develop the practical skills necessary for entry-level salon work concentrating on chemical hair control, safety procedures and sanitation, hair shaping, hairstyling, hair coloring, thermal curling, shampooing, scalp and hair conditioning, manicuring, artificial nails and skin care, facials and makeup. This course will provide lecture hours concentrating on facial shape, facials, applying makeup, hair removal such as tweezing and waxing. This course will contribute 96 hours towards licensure. The State of Minnesota mandates the hours to go toward the hour requirements. Prerequisites: successful completion of, or concurrent enrollment in preclinic courses.

COSM 1170 **4 Cr.**
Clinic VII

This course will provide students with an opportunity to develop the practical skills necessary for entry-level salon work concentrating on chemical hair control, safety procedures and sanitation, hair shaping, hairstyling, hair coloring, thermal curling, shampooing,

scalp and hair conditioning, manicuring, artificial nails and skin care, facials and makeup. This course will contribute 128 hours towards licensure. The State of Minnesota mandates the hours to go toward the hour requirements. Prerequisites: successful completion of, or concurrent enrollment in preclinic courses.

COSM 1175 **3 Cr.**
Clinic VIII

This course will provide students with an opportunity to develop the practical skills necessary for entry-level salon work concentrating on chemical hair control, safety procedures and sanitation, hair shaping, hairstyling, hair coloring, thermal curling, shampooing, scalp and hair conditioning, manicuring, artificial nails and skin care, facials and makeup. This course will contribute 96 hours towards licensure. The State of Minnesota mandates the hours to go toward the hour requirements. Prerequisites: successful completion of, or concurrent enrollment in preclinic courses.

COSM 1181 **2 Cr.**
License Preparation for Cosmetology I

Provides students with an opportunity to develop the practical skills necessary for entry - level salon work concentrating on chemical hair control, safety procedures and sanitation, hair shaping, hairstyling, hair coloring, thermal curling, shampooing, scalp and hair conditioning, manicuring, artificial nails and skin care, facials and makeup. This course will prepare students for their written state examinations and completion of skill certification. This course will contribute 64 hours towards licensure. The State of Minnesota mandates the hours to go toward the hour requirements. Prerequisite: Successful completion of, or concurrent enrollment in preclinic courses.

COSM 1182 **2 Cr.**
License Preparation for Cosmetology II

A continuation of COSM 1181. Provides students with an opportunity to develop the practical skills for entry - level salon work concentrating on chemical hair control, safety procedures and sanitation, hair shaping, hairstyling, hair coloring, thermal curling, shampooing, scalp and hair conditioning, manicuring, artificial nails and skin care, facials and makeup. This course will prepare students for their written state examinations and completion of skill certification. This course will contribute 64 hours towards licensure. The State of Minnesota mandates the hours to go toward the hour requirements. Prerequisite: Successful completion of, or concurrent enrollment in preclinic courses.

COSM 1185 **1 Cr.**
Salon Operations I

This course gives students additional time to complete the required services and/or hours for licensure. (prerequisite: completion of concurrently enrolled in COSM1180, ESTH1000, NAIL1000.

COSM 1190 **2 Cr.**
Salon Operations II

This course gives the students additional time to complete the required services and/or hours for

licensure. Prerequisite: completion of concurrently enrolled in COSM1180.

COSM 1195 Salon Operations III 3 Cr.

This course gives students additional time to complete the required services and/or hours for licensure. Prerequisite: completion or concurrently enrolled in COSM1180, ESTH1000, NAIL1000.

COSM 1200 Salon Operations IV 4 Cr.

This course gives students additional time to complete the required services and/or hours for licensure. Prerequisite: completion of concurrently enrolled in COSM1180, ESTH1100, Nails1100.

COSM 1205 Salon Operations V 5 Cr.

This course gives students additional time to complete the required services and/or hours for licensure. Prerequisite: completion of concurrently enrolled in COSM1180, ESTH1100, NAIL1100.

COSM 1210 Salon Operations VI 6 Cr.

This course gives the students additional time to complete the required services and/or hours for licensure. (prerequisite: completion or concurrently enrolled in COSM1180, ESTH1100, NAIL1100)

COSM 1215 Salon Operations VII 7 Cr.

This course provides the additional hours needed to complete licensure in states which require more lecture hours. (prerequisite: completion or concurrently enrolled in COSM1180)

COSR 1100 40 Hour Refresher Course 2 Cr.

This course gives students the Minnesota 40 hour refresher course requirements needed for license renewal. (Prerequisites: previous Minnesota cosmetology license)

COSR 1105 155 Hour Reactivation Course Theory 4 Cr.

This course gives students the theory portion of the Minnesota 155 hour reactivation course requirements for reactivating a license (prerequisites: previous Minnesota cosmetology license)

COSR 1110 155 Hour Reactivation Course Practical 3 Cr.

This course gives students the practical portion of the Minnesota 155 hour reactivation course requirements for reactivation of a license. (Prerequisites: previous Minnesota cosmetology license)

COSR 1115 155 Hour Reactivation Course License Preparation 1 Cr.

This course prepares students for their written and practical examinations required for reactivating a

license. (Prerequisites: previous Minnesota cosmetology license)

CARPENTRY (CRPT)

CRPT 1101 2 Cr.

Tool Safety, Construction Terms & Materials

The purpose of this course is to learn the different types of materials and terms used on all construction sites and how to maintain and use all hand and power tools.

CRPT 1105 4 Cr.

Floor and Wall Framing

Students gain hands-on experience laying out building, straightening, bracing and leveling. They layout and erect the supporting structures for residential floor and wall components.

CRPT 1110 2 Cr.

Roof Framing Part I

The basics of roof framing are covered in this course. Students will learn theory behind trusses, stick framing and loads. They will be taught how to use a framing square and roof terminology. Students completing this class will be able to build a simple gable roof system.

CRPT 1115 2 Cr.

Insulation, Ventilation, Vapor Barriers and Dry Wall

Insulation and improved construction methods provide an important measure of energy conservation. Students will learn insulation types and values, the importance of vapor barrier and its proper placement, drywall application, taping and texture.

CRPT 1120 2 Cr.

Roof Framing Part II

The course is a continuation of Roof Framing I. Students will learn more complex roof systems of today's houses. Subjects covered will be layout of hip rafters, construction of both cut in valleys and blind valleys, intersecting roofs as well as unequal pitched roofs.

CRPT 1125 3 Cr.

Estimating Blueprint Reading

Students will learn how to estimate the cost of a house and gain in-depth knowledge of carpentry math. They will learn the basic principles of interpreting blueprint reading and transferring the knowledge into a complete project.

CRPT 1130 2 Cr.

Stairway Construction

Stairway construction is considered one of the more highly skilled areas of carpentry work. Students will learn stair terminology, layout and construction by building a straight stairway and a quarter turn stairway.

CRPT 1135 2 Cr.

Exterior Finishing Wall and Roof Covering

The exterior finish of a building includes the door and window units and all the materials that cover the roof and exterior. They must also give weathertight protection to the roof and exterior walls.

CRPT 1140 Project Planning, Estimation, Layout Estimate all material for house project and award bid for materials. Meet with sub-contractors, go over specifications and award bids. Students will locate boundary stakes, establish building corners and build batter boards. They will identify sewer elevations and establish all elevations necessary for excavation. Supervise excavation, build forms and pour footings for house project.	4 Cr.	installation. These skills will be developed by the construction of an on-site built residential home.
CRPT 1145 Interior Trim Interior finish work is the final stage in the construction of a building. It should not begin until the building is completely enclosed and all windows and exterior doors have been installed. Interior finish includes all the surface materials placed on the walls, floors and ceilings.	2 Cr.	CRPT 2242 Deck and Porch Construction This course covers construction of a variety of decks, porches and patios, the materials used in their construction and the methods of handling a variety of materials.
CRPT 1150 Sight Layout, FO, Blueprint Reading This course will expose students to the tools and skills necessary to lay out a building site and construction methods use to form and pour concrete footings for a building. The student will also be taught the skills needed to accurately read and interpret a complete set of working drawings for residential and light commercial construction projects.	4 Cr.	CRPT 2245 Cabinet Layout and Design In this course the student will be trained to analyze cabinet needs and available spaces and design cabinets for specific uses. Drawing up of basic construction plans is an integral part of this course.
CRPT 2205 Foundations and Floors This course is designed to give the student hands-on experience with laying out and squaring up foundation walls, and actual construction of various types of foundation structures for a residential home. Concrete mixtures, estimating, pouring consistencies, placement and finishing techniques for vertical and flatwork concrete pours is also included.	3 Cr.	CRPT 2249 Cabinet Installation This course covers the installation of all types of cabinets and counter tops.
CRPT 2215 Concrete Technology This course covers designing concrete mixes for specific uses, preparing sub-base areas and building forms, handling and placement of concrete mixes and finishing techniques.	2 Cr.	CRPT 2250 Cabinet Construction This class takes the students through the construction of a variety of Kitchen, Bathroom, Utility, and Specialty cabinets, and counter tops.
CRPT 2235 Wall and Roof Framing This course is designed for identification and assembly of all components in Western Platform framing construction in accordance with all state and local codes. Students will perform horizontal and vertical layout of interior and exterior wall assemblies. Erect, plumb and brace walls, fasten components together, and install exterior wall sheathing. Students will install roof truss systems, hand frame roof sections of various styles, including ceiling vaults and trays, install roof sheathing and apply shingles and flashings.	3 Cr.	CRPT 2260 Interior Finish and Staircase Construction This course covers identification and application of all types of interior finish materials, installation of such materials and finishing techniques. A variety of types of staircases will be studied and at least one or two stairways constructed.
CRPT 2237 Exterior Finish and Shingling This course covers identification and application of all types of siding, shingles, soffit and fascia covers and rain gutters. Also cover attic ventilation equipment	4 Cr.	CRPT 2270 Construction Business Management This course covers the basic principles of construction business accounting, organization of business structure, Employee management, business licensing requirements, and trade knowledge, for the purpose of starting your own small business.
		CRPT 2271 Construction Drafting and Design Students learn the basic principles of mechanical drafting, architectural drafting, and design floor plans. Auxiliary views, cross sections, and elevational views are studied.
		CRPT 2280 Insulation and Interior Wall Covering Covers a variety of insulation materials and applications and insulating methods, and ventilation requirements. The student will install interior wall and ceiling coverings and apply finishing materials.
		COMPUTERIZED SMALL BUSINESS MANAGEMENT (CSBM)
		CSBM 1100 Disk Operating Systems for Small Business This course covers DOS and hard drive concepts. The emphasis is on concepts and commands that will

enable the student to better understand and maintain their own microcomputer system.

CSBM 1110 3 Cr.
General Ledger for Small Business

This course covers the process of computerizing business records using General Ledger software. The student will be able to produce financial statements using the selected software package.

CSBM 1120 2 Cr.
Bank Reconciliation for Small Business

This course covers the application of computerized bank account/General Ledger reconciliation. The student will be able to prove bank account cash balances using the selected software package.

CSBM 1130 3 Cr.
Accounts Receivable for Small Business

This course covers the process of computerizing business records using Accounts Receivable software. The student will be able to produce customer invoices, statements and reports using the selected software package.

CSBM 1140 3 Cr.
Accounts Payable for Small Business

This course covers the process of computerizing business records using Accounts Payable software. The student will be able to track purchases, pay bills, manage cash flow and print reports using the selected software.

CSBM 1150 3 Cr.
Payroll in Small Business

This course covers the process of computerizing business records using Payroll software. The student will be able to calculate payroll, print payroll checks, track tax liabilities and print reports using the selected software package.

CSBM 1160 2 Cr.
Governmental Payroll Reporting for Small Business

This course covers the fundamentals of employment forms and payroll tax reports that apply to small business. The student will be able to identify and complete forms as required by agencies of Federal and State government.

CSBM 1200 2 Cr.
Introduction to Computers for Small Business

This course covers the basics of microcomputer systems. The student will gain an overview of DOS, Word-Processing, Database file management and Spreadsheets. This will provide a good foundation for further computer training.

CSBM 1202 1 Cr.
Windows Operating Systems in Small Business

This course covers Windows as an operating system. The emphasis is on concepts and commands that will enable the student to better understand and maintain their own microcomputer system.

CSBM 1204 3 Cr.
Word-Processing for Small Business

This course covers the use of word-processing software for business applications. The student will be able to create, edit, manipulate and print documents using selected software.

CSBM 1206 3 Cr.
Spreadsheets for Small Business

This course covers the use of Spreadsheet software for business applications. The student will be able to create, edit, manipulate and print documents using selected software.

CSBM 1208 3 Cr.
Data Base Management for Small Business

This course covers the use of data base management software for business applications. The student will be able to create, edit, manipulate and print documents using selected software.

CSBM 1210 2 Cr.
Desktop Publishing for Small Business

This course covers desktop publishing techniques and applications used to design professional looking documents. The student will be able to create, edit, manipulate and print documents using selected software.

CSBM 1212 1 Cr.
Introduction to Recordkeeping for Small Business

This course introduces the principles and systems of accounting in a small business. Accounting records and reports are critical in management of a small business.

CSBM 1214 2 Cr.
Sales Order Entry for Small Business

This course teaches the proper method of gathering and entering sales data. The student will know the difference between the sale that needs to interact with perpetual inventory, and which do not. The student will learn how sales tax affects all types of sales. Customers will be setup properly to reflect the discount, chart of account number, sales and use taxes, and pricing levels that apply, as well as customer categories for statement purposes.

CSBM 1216 3 Cr.
Inventory Control for Small Business

This course teaches the correct type of inventory method that the company needs to use, FIFO, LIFO, Average Cost, or Standard Method. The student will learn to enter each inventory item, vendor product code, proper department, current cost, selling price categories, as well as the product code. The student will learn how to enter, and process purchase orders. The student will fill out, receive, post, update inventory, and convert purchase orders to accounts payable invoices. The student will learn how to utilize all aspects of manufacturing assemblies, if it applies to their company. They will understand physical inventory, and maintain the perpetual inventory based on actual amounts, and correct prices for each item.

CSBM 1218 1 Cr.
Payroll Year End Close for Small Business
This course covers the process required to close the Payroll system at the end of a calendar year. The student will be able to reconcile payroll records, print the required tax reports and prepare the system for the next year using the selected software package.

CSBM 1220 1 Cr.
Accounting Year End Close for Small Business
This course covers the process required to close the Accounting system at the end of a fiscal year. The student will be able to reconcile accounting records, post year-end journal entries and prepare the system for the new year using the selected software package.

CSBM 1222 2 Cr.
Network Administration for Small Business
This course introduces the student to network operating procedures. The student will be able to operate their implemented system in a multi-user environment.

CSBM 1224 1 Cr.
Software Upgrade for Small Business
This course covers the process required to evaluate software upgrades. The student will develop a software efficiency model and will evaluate that model against vendor documentation to decide on the proposed upgrade.

CSBM 1226 1 Cr.
Software Analysis for Small Business
This course covers the process required to evaluate software products. The student will develop a software selection model, review appropriate software products and implement a decision process.

CSBM 1228 1 Cr.
Hardware Analysis for Small Business
This course covers the process required to evaluate computer hardware products. The student will develop a hardware selection model, review appropriate hardware products and implement a decision process.

CSBM 1230 1 Cr.
Operations Manual for Small Business
This course covers the process of documenting the system operating procedures implemented during the installation and configuration and data entry phases. The student will assemble all documentation into an operations manual.

CSBM 1232 3 Cr.
Asset Management for Small Business
This course teaches the concept of asset valuation as it relates to actual and depreciated value. The student will learn how to use standard depreciation methods to determine the current months depreciation expense, and correct offsetting accumulated depreciation for each class of fixed assets. The student will enter all company assets in the fixed asset module, when the balance sheet is setup and enter each asset properly as it is purchased during the ongoing business cycle.

CSBM 1234 3 Cr.
Financial Statement Analysis for Small Business
This course teaches the generally accepted business ratios that apply to performance when compared to generally accepted industry standards. The student will learn which ratios apply, how to compute the ratios, and the importance of each ratio. The student will use company data that comes from very accurate accrual financial statement. After computing these ratios, the student will display knowledge of the importance of these trends, as they relate to the success of the business.

CSBM 1236 1 Cr.
System Evaluation for Small Business
This course covers the process used to evaluate the completed system against the original project plan. The student will develop a document outlining the projects strengths, weakness, needed improvements and a future system growth path.

COMPUTER SCIENCE (CSCI)

CSCI 1100 2 Cr.
Microcomputer Keyboarding
Provides basic instruction on the use of the electronic keyboard. Basic touch keying is taught to develop the student's skill in rapidly and efficiently entering information into a microcomputer via the keyboard. Includes both alphabetic and numeric entries. The course also teaches basic document formatting for various styles of personal and business documents such as letters, memorandums and compositions.

CSCI 1101 1 Cr.
Introduction to Selected Operating Systems
Provides an overview of computer hardware and the operating system. Specifically studies creation, manipulation, and editing of files, graphical environments, sharing and exchanging data among applications and problem solving using the accessories and utilities of the operating systems, MS Dos, Windows or MAC OS. May be repeated for different operating systems. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

CSCI 1102 3 Cr.
Introduction to Microcomputers
Provides an overview of computer information processing with the primary emphasis on the microcomputer. Students learn and apply the basic elements of word processing, spreadsheet and document integration. Also introduces the basic concepts of graphics, telecommunications and the Internet and computer programming. Prerequisite: CSCI 1100 or prior keyboarding experience. This course is required for A.A. and A.S. Degrees.

CSCI 1131 2 Cr.
Word Processing I
Discusses the uses of electronic word processing. Covers basic line and text editing. Primary emphasis is on preparing and managing documents as well as formatting and enhancing. Prerequisite: STSK 0095

or evidence of college level reading ability through assessment test or prior college coursework.

CSCI 1150 **Presentation Development** **3 Cr.**

Discusses and demonstrates the processes of designing, developing and producing a professional electronic presentation using automated presentation graphics software. The slide show production includes outlines, speaker notes, handouts, animation, audio resources, and coordination between overhead and video sources. Prerequisite: CSCI 1102.

CSCI 2100 **Advanced Microcomputer Applications** **4 Cr.**

Provides a comprehensive and advanced look at the use of microcomputers in today's society. Emphasis is placed upon the integrated nature of many of today's major applications. Includes a component on the designing and creation of graphic presentations including word processing, data base management, spreadsheets, integration tools and Power Point. Prerequisite: CSCI 1102.

CSCI 2120 **Publishing Web Pages** **1 Cr.**

Provides basic knowledge about publishing on the World Wide Web. Topics covered include home pages, design techniques for creating an attractive page, elements of web pages, and using a web browser to tour sample sites. Hypertext Markup Language Editors and the browser editor will be used to develop and author web pages. Prerequisite: CSCI 1120 or knowledge of the internet.

CSCI 2130 **Data Base Management Systems** **3 Cr.**

Provides an understanding of a computerized database as a structure for organizing and managing data and is designed to show the student the advantages in storing, retrieving, searching, and analyzing large amounts of data electronically. Concepts include the design, creation, and manipulation of data files. Special emphasis is placed on designing queries and creating reports. Prerequisite: CSCI 1102.

CSCI 2135 **Advanced Web Techniques** **3 Cr.**

This course is an introduction to Web Programming. It covers scripting from both the Client and Server sides. Students are introduced to VBScript, JavaScript, and Active Server Pages (ASP). Students will also learn how ASP can be used so Web application can interact with Databases. Prerequisite: CSCI 1102

CSCI 2140 **Electronic Spreadsheets and Graphics** **3 Cr.**

Explores topics of statistical applications, managing database systems, and various graphical capabilities using integrated business simulations. Internal and external program utilities to aid in scanning, importing graphics and combining files will be introduced. Competency in statistical and logical formulas, charting techniques, database manipulation and macro design is expected. Prerequisite: CSCI 1102.

CSCI 2150 **Multimedia for the Web** **3 Cr.**

Explores emerging standards and futuristic trends for web site development and maintenance of text, graphics, scanned images, audio, video, dynamic and interactive elements to enhance web pages. Objects of scrolling messages, pop-up windows, applets, reaction to the state of the browser and event/response to user interventions provide dynamic content. Additional actions of the web site hierarchy, security, management and maintenance are employed through the development of a media-enhanced web site. Prerequisite: CSCI2215

CSCI 2200 **Visual Basic Programming** **4 Cr.**

Creates graphical user interface applications through programming in Visual Basic. Topics covered are arithmetic statements, conditional statements, looping structures, data structures, sequential files, random files, design and graphics. Uses DDE, Dynamic Data Exchange, as a way of sharing electronic data between Windows applications and emphasizes problem solving using an OOED, Object-Oriented Event-Driven, approach. Prerequisite: CSCI 1102.

CSCI 2202 **Computers, Technology, and Society** **4 Cr.**

This is a writing intensive course. Because technology is transforming the way society communicates, conducts business, manages personal and public information; students will use technology to investigate complex social and ethical issues associated with the use of computers and technology. Prerequisite: CSCI 1102.

CSCI 2215 **Web Programming I** **3 Cr.**

Discusses fundamentals of web servers, web sites and web programming in the context of using the technology to craft a conveying message to an Internet audience. An overview of the history and origins of web programming continues with the robust creation of HTML source code that supports and sustains the use of internal and external linking, multiple media elements, tables, image mapping, frames and input forms. The primary objective is to create and manage a multiple page website using HTML, DHTML, CGI and JavaScript programming code. Prerequisite: CSCI 1102.

CSCI 2235 **Special topics in Computer Science** **1-3 Cr.**

Introduces students to specialized areas of computer science and computer usage. This class may be retaken for credit if the topic varies. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

CSCI 2240 **Fundamentals of Programming I** **4 Cr.**

Emphasizes concepts that provide a fundamental background for continued study in the area of computer science. Involves high-level language programming

and the use of abstraction in program design.
Prerequisite: CSCI 1102.

CSCI 2245 4 Cr.

Fundamentals of Programming II

Discusses topics including object-oriented programming techniques, essential data structures such as stacks, queues, trees, sorting, and searching algorithms using a high-level programming language.
Prerequisite: CSCI 2240.

CSCI 2250 4 Cr.

Java Programming

Provides an overview of the Java programming language and special features of control structures, input/output streams, data structures, and abstraction mechanisms. Concepts include creating complete Java classes, derive new classes with effective use of inheritance, and use Java to create applets.
Prerequisite: CSCI 1102.

CSCI 2255 4 Cr.

Java Programming II

Continues with an intermediate to advanced study of Java as an object oriented programming language. Concepts include abstract data type with a Class, constructors, overloaded constructors, instance variable, final, superclasses, subclasses, inheritance, String class, constructors and methods, StringBuffer class, constructors and methods, Graphic Objects, Swing Components, Event Handling, Layout Managers, Exception Handling, Multithreading, Files and Streams.

CSCI 2260 4 Cr.

Assembly Language Programming

Emphasizes concepts that provide a fundamental background for continued study in the area of computer science. Involves lower-level programming and the use of abstraction in program design. Prerequisite: CSCI 2245.

CSCI 2280 4 Cr.

System Analysis and Design

Explores both structures and object oriented systems analysis and design methodologies and provides an understanding of the role of the systems analyst.
Prerequisite: CSCI 2240 or CSCI 2250.

CSCI 2290 1 Cr.

Technology Capstone Seminar

Studies a variety of current technology dependent business implementations. Examines ethical behavior and consequences related to issues of Internet use, copyright, security, ergonomics, and safety and health. Discusses state-of-the art and futuristic trends within technology development. Prerequisite: CSCI 1102 and either one CSCI application course or one CSCI programming course.

COMPUTER SUPPORT TECHNICIAN (CST)

CST 1111 3 Cr.

File Structures

This course provides the student an opportunity to develop a solid understanding of the Disk Operating System (DOS). Students will use DOS commands to perform operations such as managing file storage and creating batch files.

CST 1127 3 Cr.

Windows Desktop Operating Systems

This course uses the current Windows operating system. Specific concepts will include installing, configuring, troubleshooting and maintaining efficiency of the operating systems to meet end-user needs in a production environment.

CST 1135 3 Cr.

Unix Operating Systems

This course is designed to familiarize students with Unix-based operating systems. The student will use the Linux operating system for this course. Installing and configuring in a network environment will be covered. In addition, kernel configuration, mailer configurations and uses, file transfer protocol, web servers, printing, and file and directory permissions will be covered. (Prerequisite: CST111 File Structures)

CST 1180 1 Cr.

Data Security Awareness

This course will introduce the student to the need for information security, including the ethical, legal and professional security issues. The student will develop an awareness of the types of attacks on data, who would perform such attacks, and how to defend against data loss. The student will learn how to protect their home and office computer from misuse and viruses. The student will also be presented with corporate security strategies, including policies, incident response and disaster recovery.

CST 1190 3 Cr.

Introduction to Networking

This course will cover the fundamentals of current networking technology. A general introduction to networking including local and wide area network technology will be presented to students. This course is designed to help candidates prepare to successfully pass the Comp TIA Network + examination.

CST 1200 3 Cr.

Introduction to Information Security

This course will introduce the student to the need for information security, including the ethical, legal and professional security issues. The student will assess, identify and control security risks, identify secure network design, plan for disaster recovery, setup security policies and secure employment practices. This is the first in a series of courses designed to understand and manage information security and will touch on most aspects of information security.

- CST 1220** **Information Security Management** **3 Cr.**
 In this course the student will continue to explore information security management issues, including authentication, virus attacks and prevention, firewalls, intrusion detection and other security devices and topologies. The student will learn to control security risks, identify secure network design, plan for disaster recovery and setup security policies. This course covers most of the objective in Comptia's Security + exam.
- CST 1250** **Information Security Administration** **3 Cr.**
 In this course the student will continue to explore information security administration issues, including the hands on setup of secure environment components. This will include securing network hardware and software, intrusion detection and other security devices and topologies. The student will learn information security setup and maintenance, disaster recovery and implementation of security policies.
- CST 1270** **Window XP Professional** **3 Cr.**
 The student will learn how to set up and support the Windows XP Professional operating system. Gain practical experience installing, configuring, and administering Windows XP Professional. As you build these real-world system support skills, you're also preparing for MCP Exam 70-270--a core requirement on the MCSE/MCSA tracks. Prerequisite: CSCI 1102 and CST 1190.
- CST 1300** **Computer Forensics** **3 Cr.**
 This is an introductory course in computer forensics, which is the study of a computer that has been compromised and the recovery of evidence or information. In this course the student will concentrate on how to recover information from a computer or network after an attack. The student will look at both disaster recovery after a hacker or virus attack and also how to get information from a system that has been used for illicit activities. The student will use a systematic approach to gather information without destroying evidence.
- CST 1500** **Routers and Switches** **3 Cr.**
 This course introduces the student to practical networking experiences within a laboratory environment. Students will study router and switch basics, configure routers, investigate routing protocols, configure switches, develop access lists and troubleshoot routing technologies. Prerequisite: CST 1190
- CST 2120** **Computer Integrated Manufacturing** **4 Cr.**
 Students have an opportunity to develop skills in designing, wiring, troubleshooting, and operation of electrical control circuits. A supervised time for students to hardwire and program various programmable logic controllers. Provides the student with an understanding of and the ability to use pic's in all phases of industrial automation.
- CST 2125** **Overlay Design with Visual Basic** **3 Cr.**
 This course covers the fundamentals of programming using the Visual Basic programming system. Many programming elements are introduced including sequence, loop and decision structures as well as object linking and embedding. Event-driven programming is introduced and implemented. Projects progress from performing existing program modifications to writing final project program. (Prerequisite: CSCI1102 Introduction to Microcomputers)
- CST 2199** **Internship** **2-8 Cr.**
 This course allows the student to secure "on-the-job" training and earn 2-8 semester elective credits. The student must find their own internship site and complete all paper work.
- CST 2215** **PC Maintenance and Repair II** **3 Cr.**
 This course is designed to give students the opportunity to complete curriculum to become A+ certified. PC Maintenance and Repair I is a prerequisite. Software components of A+ exam will be covered. Students will also partake in business like atmosphere by troubleshooting and repairing computer problems on campus as assigned by instructor. A portfolio of repair projects completed will be maintained by the student.
- CST 2223** **Windows Network Administration I** **3 Cr.**
 This course will introduce the student to Windows networking theories and practices. Concepts such as planning the network, installation, configuration, creating and managing folders, files, users and print service.
- CST 2224** **Windows Client/Server Administration** **4 Cr.**
 This course will cover how to set up and support the Windows Server & clients. Course will teach students to implement, administer, and troubleshoot information systems that incorporate Microsoft Windows Server & clients. Hands-on, practical experience, and exercises will be incorporated into this course. This course helps students to prepare for Microsoft certification. Prerequisites: CST 1111 or CST 1190.
- CST 2230** **Novell NetWare Administration I** **3 Cr.**
 This course will introduce the student to Novell networking theories and practices. Concepts such as planning the network, users, groups, the NDS tree, file and print services, and objects will be covered.
- CST 2240** **Home Networking** **2 Cr.**
 Prepares students for the CompTIA HTI+ certification exam. This is a practical approach to networking

technologies, audio visual systems automation methods, and telecommunication techniques that converge in integrated home technology. Prerequisite: CST 1190 Introduction to Networking

CST 2284 3 Cr.

Microsoft Exchange Server

Develop skills that are needed to update and support a reliable, secure messaging infrastructure. This infrastructure is used for creating, storing and sharing information by using Microsoft Exchange Server in a medium-sized to large-sized (250 to 5,000 users) messaging environment. This course offers a significant number of hands-on practices, discussions and assessments that assist students in becoming proficient in the skills that are needed to update and support Exchange Server. Prerequisite: CST 2223 Windows Client/Server Administration

CST 2291 3 Cr.

Windows Network Infrastructure I

Covers how to plan a network infrastructure around features supported by Windows. Issues such as network protocol and services are introduced. This includes using the Internet work Packet Exchange/Sequences Packet Exchange (IPX/SPX) - compatible protocol to integrate with Novell Netware. Students will learn how to utilize, manage, and configure the TCP/IP protocol and features such as NetBIOS, WINS, DHCP and DNS. Students will learn to configure, manage and troubleshoot networks routing and remote access, including setting up virtual private networks (VPN's). Hands-on, practical experience exercises will incorporate into this course. This course helps students to prepare for Microsoft certification. Prerequisite: CST 1190 Introduction to Networking

CST 2293 3 Cr.

Windows Network Infrastructure II

Prepares students for the corresponding MCSE certification exam and for the challenges they will face as a Microsoft networking professional. Lectures, projects and exercises reinforce skills as they learn. Specific topic coverage includes: Overview of Planning a Windows Server 2003 Network, TCP/IP Architecture, Planning and Managing a TCP/IP Network, Planning and Configuring Routing and Switching, Planning, Configuring and Troubleshooting DHCP, Planning, Configuring and Troubleshooting WINS, Planning a DNS Strategy, Managing and Troubleshooting DNS, Planning and Managing Certificate Services, Planning and Managing IP Security (IPSec), Planning Network Access, Planning and Implementing Server Availability, Planning Server and Network Security, Problem Recovery. Prerequisite: CST 2291 Windows Network Infrastructure I

CST 2294 3 Cr.

Windows Active Directory

Covers how to plan, configure and administer an Active Directory infrastructure. The student will learn to configure Domain Name System (DNS) to manage name resolution, schema and replication. The student will also learn how to use Active Directory to centrally

manage users, groups, shared folders and network resources and to administer the user environment and software with group policy. This course will show the student how to implement and troubleshoot security directory services infrastructure and monitor and optimize Active Directory performance. Students will deploy Windows remotely using Remote Installation Services (RIS). Hands-on practical experience with exercises will be incorporated into this course. This course helps students to prepare for Microsoft certification. Prerequisite: CST 1190 Introduction to Networking

CST 2298 3 Cr.

Microsoft Windows Security

Prepares students to analyze the business requirements for security and design a security solution that meets business requirements. Securities that this course will cover include: controlling access to resources, auditing access to resources, authentication and encryption. Completion of this course will help students prepare for Microsoft certification. Prerequisite: CST 1190 Introduction to Networking

CST 2310 2 Cr.

Information Technology Customer Service

This course covers the basic skills needed to work effectively with customers one-on-one or at a help desk. Basic communication, listening, telephone, writing, and problem solving skills are developed.

CST 2326 2 Cr.

Web Page Concepts

This course covers topics necessary to maintain and support an existing Web site. Students will be proficient in adding Lists, Hyperlinks, Pictures and task lists to web pages. Publishing a web site will also be covered. Prerequisites: CSCI1102 Intro to Computers and CST1190 Intro to Networking, or Instructors approval.

CST 2340 3 Cr.

Web Server Concepts

This course will introduce the student to the Internet, including setup, operation and maintenance of an Internet web server. Concepts such as installation, configuration and maintaining the server. Creating and troubleshooting web pages, understanding the Internet protocols and security. We will be working with the Microsoft Internet Information server features and functions.

CST 2413 3 Cr.

Windows Network Administration II

This course will continue with the concepts learned in the Windows Network Administration I class. The student to Windows Network networking theories and practices. Concepts such as maintaining the network, installation and configuration of applications on the Network, creating and managing folders, files, users and print services.

CST 2420 **Novell NetWare Administration II** **3 Cr.**
This course will review the concepts learned in Novell Administration I. This course will also cover security administration, user, application and network management in addition to preparation for the Novell Netware Administration Exam.

CST 2500 **Incident Response and Disaster Recovery** **3 Cr.**
This course will introduce the student to the complexities involved in responding to intrusions and threats to their information systems structure. The student will prepare portions of a disaster recovery plan for information systems and test the plan in a lab environment. The student will learn the importance of planning for a disaster, what to do during a disaster, when to escalate an incident to a disaster and who needs to be involved in the planning, implementation and recovery. Prerequisite: CST 1250

CST 2520 **Ethical Hacking** **2 Cr.**
This course is designed for the student to explore the tools that hackers use to gain access to systems in order to better protect their network environment. It will look at software, hardware and social engineering schemes that hackers use. The course will also cover suggestions for protecting your system from unauthorized access. Legal and ethical hacking issues will be discussed.

CST 2600 **Fundamentals of Wireless Networking** **3 Cr.**
This course is designed to educate the student in the areas of wireless networking technologies and the implementation of those technologies. Emphasis is placed in the areas of design, planning, implementation, operation and troubleshooting. Prerequisite: CST 1500

DENTAL ASSISTANT (DEN)

DEN 1100 **Oral Radiology I** **3 Cr.**
This course will assist the student in understanding how radiation is produced, how radiation exposes films, and how radiation affects people. The emphasis will be on understanding the principles of protection for the patient and the operator, the techniques for exposing, processing, and evaluating high quality diagnostic radiographs will also be taught and demonstrated.

DEN 1105 **Oral Radiology II** **3 Cr.**
This course will give the student the opportunity to clinically develop and improve their skills in exposing, processing and evaluating diagnostic radiographs with minimum exposure and discomfort to the patient. The course will also cover the laws set forth by the Minnesota Department of Health in relationship to exposing radiographs on patients.

DEN 1110 **Dental Science** **3 Cr.**
The histology and physiology of the muscular, skeletal, circulatory and nervous systems of the head and neck regions. Individual bones, muscles, arteries, veins and nerves will be identified. In addition the structures, functions and development of oral cavity will be discussed and the varied methods of individual tooth identification will be covered.

DEN 1115 **Dental Health** **2 Cr.**
This course will assist the student in making practical applications of the concepts and principles associated with diet and nutrition from the stand point of general health as well as dental health. The course will also emphasize the nature and causes of disease in the oral cavity and the importance of prevention of this disease with practical application in instructing patients.

DEN 1120 **Chairside Assisting I** **2 Cr.**
This course will assist the student in attaining skills required to be a qualified chairside assistant. It includes charting of the oral structures and instrument identification.

DEN 1125 **Chairside Assisting II** **4 Cr.**
This course will include instructions in the areas of care of equipment, delivery systems, oral evacuation, tray set-ups, etc. The course will assist students through hands on experience in the clinic. This course will also assist the students in understanding the specialties available in dentistry. Students will be taught to identify the materials, instruments and procedures needed in these specialties and to gain skills in assisting the dentist in performing these procedures with minimal discomfort to the patient.

DEN 1130 **Preclinical Dental Assisting** **4 Cr.**
This course will allow the students to recognize micro-organisms, how they live, cause disease, spread disease and how humans protect themselves from micro-organisms. Special emphasis will be placed upon micro-organisms that are most dangerous to health care workers. The course will also include the nature and causes of the diseases and traumas which involve changes in the structure and function of the oral cavity. In addition, it will assist students in understanding how to prevent dental office emergencies and how to prepare for these emergencies should they occur. Includes CPR/First Aid, and students will attain certification Level C in CPR upon completion of the course and testing.

DEN 1135 **Dental Practice Management** **3 Cr.**
This course will assist the student in identifying psychological variables that are significant in dealing with dental patients and coworkers. It will also include information relating to the function of the business office with emphasis on maintaining patient records,

bookkeeping, appointment scheduling, filing, etc. Both manual and computerized systems will be examined.

DEN 1140 3 Cr.
Dental Materials

This course will cover materials used in dentistry. It will include information on properties as well as practical lab applications of the materials.

DEN 1145 3 Cr.
Expanded Functions A

This course will offer the student experience in mechanical polish, rubber dam application, topical applications and monitoring nitrous oxide administration. (The Minnesota Dental Practice Act has made it legal for registered dental assistants and students enrolled in accredited dental assisting programs to perform these functions.) The student will attain preclinical competence in these duties through the use of typodonts and clinical competence through classmates and outside patients.

DEN 1150 3 Cr.
Expanded Functions B

This course will offer the student experience in taking alginate impressions for opposing and study models, orthodontic skills, cement removal, temporization, sealant application, placing and removing periodontal dressings, and suture removal. (The Minnesota Dental Practice Act has made it legal for registered dental assistants and students enrolled in accredited dental assisting programs to perform these functions.) The student will gain preclinical competence in these expanded functions through the use of typodonts and clinical competence through classmates and outside patients.

DEN 1155 2 Cr.
Extraclinical Experience I

This course is designed to assist the student in developing the skills initiated in the classroom, laboratory and clinic. This is accomplished by working under the supervision of the dentist and his/her staff as well as the dental assisting faculty.

DEN 1160 2 Cr.
Extramural Clinical Experience II

This course is designed to provide further assistance to the student in developing the skills started in the classroom, laboratory or clinic by working in a dental office under the supervision of the dentist and his/her staff and the dental assisting faculty.

DEN 1165 2 Cr.
Extramural Clinical Experience III

Further assistance to the student in developing the skills started in the classroom or laboratory by working in a dental office under the supervision of the dentist and his/her staff and the dental assisting faculty.

DEN 1170 3 Cr.
Extramural Clinical Experience I

DEN 1175 3 Cr.
Extramural Clinical Experience II

DEN 1180 1 Cr.
Jurisprudence

This course covers the moral and legal aspects of working in a dental office. Dental auxiliaries legal duties in Minnesota are included, as well as the various professional organizations that dental assistants find beneficial.

DEN 1185 1 Cr.
Nitrous Oxide Inhalation Administration

This course will provide the student the skills and knowledge needed for safe and effective administration of nitrous oxide inhalation analgesia and the management of associated complications. The course will provide a minimum of 16 hours of didactic and supervised clinical experiences as required by the Minnesota Board of Dentistry. During the clinical portion of the class students will administer and undergo nitrous oxide/oxygen inhalation sedation as a patient.

DIESEL TECHNOLOGY (DSL)

DSL 1100 4 Cr.
Diesel Engine Theory

This course will explain the function of the diesel combustion, chamber designs, valve train operation, rings, cylinders, pistons, crankshafts, connecting rods, and components that compliment each other.

DSL 1104 4 Cr.
Introduction to Diesel Technology

This introductory diesel technology course provides an overview of the Diesel Technology industry. Its hands-on shop experiences allow the student to disassemble, inspect, evaluate, repair and adjust, and reassemble key elements of diesel technology including fuel injection, electrical basics, engines, hydraulics, and other system components.

DSL 1105 4 Cr.
Diesel Engine Lab

This course allows the student hands-on shop experiences. The student will disassemble, inspect, evaluate, repair and adjust, and reassemble valve, valve train components, cylinder blocks, crank shafts, bearings, sleeves, pistons, rings, and other components that compliment the above.

DSL 1110 3 Cr.
Electrical Theory

This course covers circuits; magnetism; wiring diagrams; principles of operation of alternators, regulators, cranking motors; and batteries.

DSL 1115 3 Cr.
Electrical Lab

This course requires the students to disassemble, inspect, evaluate, repair and test electrical systems and components.

DSL 1120 2 Cr.
Powertrain Principles

This course covers theory of clutch, pressure plate assembly, standard transmissions, differentials, power

take-off, brakes, axles, and components that compliment powertrain operations.

DSL 1125 3 Cr.
Powertrain Lab

This course covers the disassembly, inspection, evaluation, repair and adjustments and reassembly of all components of the powertrain.

DSL 1130 3 Cr.
Hydraulics Theory and Application

This course covers principles and fundamentals of hydraulics. The student will work on various components and systems as related to diesel hydraulics within a laboratory environment.

DSL 1135 3 Cr.
Fuel Injection Principles

This course entails a study of diesel engine operation with fuel systems, the basic repair and rebuilding of injectors and timing of the fuel system to the engine.

DSL 1140 2 Cr.
Air Conditioning

This course covers operation, inspection, repair and diagnostics of air conditioning systems.

DSL 1145 4 Cr.
Introduction to Shop Operations

This course will allow students to work in a sponsoring automotive, diesel farm equipment or diesel truck service facility. The work will be full time, approximately 40 hours per week for six weeks. The tasks will be consistent with previous required course work.

DSL 1150 4 Cr.
Internship

This course will allow student to work in a sponsoring automotive, diesel farm equipment or diesel truck service facility. The work will be full time, approximately 40 hours per week for six weeks. The tasks will be consistent with previous required course work.

DSL 2106 3 Cr.
Advanced Powertrain Theory

This course covers the theory of operation of various power shift transmissions, power flow, and terminologies as related to various manufacturers. The theories of operation of electro hydraulic systems are covered in depth. This program will cover a wide variety of power train systems from Ag equipment, industrial, and trucks when available. DSL 2111 Advanced Powertrain Lab must be done concurrently with DSL2106 Advanced Powertrain Theory.

DSL 2111 4 Cr.
Advanced Powertrain Lab

This course requires the student to disassemble, inspect, evaluate, repair, reassemble, and test various power shift transmissions and related components. The student will work in the lab environment to disassemble, inspect, evaluate, repair, reassemble,

and diagnose these various electro hydraulic systems. Prerequisite: DSL 1120.

DSL 2131 3 Cr.
Service Department Operations and Procedures

This course covers the operation of a service department including customer relations and business operations such as reporting forms, work orders, and warranty claims. Student will each have the opportunity several times during the semester to be in charge of the shop operation and complete the day-to-day responsibilities of a shop foreman or service manager. This program allows students to place advanced theory into practical application in the laboratory setting. Students are assigned projects which will require them to disassemble, inspect, evaluate, repair, reassemble and test diesel farm equipment components.

DSL 2137 5 Cr.
Fuel Injection Lab

This course allows students an opportunity to apply theory in the laboratory environment. Students will disassemble, inspect, evaluate, reassemble and calibrate advanced principles in fuel injection and at least 3 sets of injectors to give them the realization of what a properly operating engine needs to perform. Prerequisites: AUTO 1136 and DSL 1135 or instructors recommendation.

DSL 2136 5 Cr.
Fuel Systems Theory

This course covers a study of all distributor pumps used in industry today with inlet metering, sleeve metering, and electronic controlled systems. This course will also examine helix and sleeve metering pumps as well as all types of governor systems used in the industry today by all of the major manufacturers. We will also begin the study of unit type injectors and will move into more of the electronic systems.

DSL 2145 4 Cr.
Advanced Diesel

This course reviews the theory and operation of specialty areas of diesel engine rebuilding. This course will take the students through all facets of repair. This course explains the procedures of various engine-machining processes. This course will also explain the function of the diesel combustion, chamber designs, valve train operation, rings, cylinders, pistons, crankshafts, connecting rods, and components that compliment each other so that the student can properly troubleshoot and diagnose customer complaints. Prerequisite: AUTO 1136.

DSL 2150 5 Cr.
Advanced Engine Lab

This lab course takes students through all facets of engine repair. In the laboratory, they will practice reconditioning of the larger and more advanced engines, with overhead cams and multiple valve cylinders, and other components like jakebrakes, unit type injectors, and adjusting of these engines. This course allows students hands-on shop experiences. Students will disassemble, inspect, evaluate, repair and adjust, and reassemble valve, valve train components, cylinder blocks, crankshafts, bearings,

sleeves, pistons, rings, and other components that compliment the above. Prerequisite: AUTO 1136.

DSL 2155 3 Cr.
Diesel Engine Control Systems

This course explains the operation of all the different governors and electronically controlled engines. In the laboratory, the student operates different types of engines with their computer programs. The student will use the laptop computer to check fault codes and follow proper diagnostics for repair of the system in accordance with manufacturers' specifications.

ECONOMICS (ECON)

ECON 1101 3 Cr.

Introduction to Economics

Introduces the fundamentals of economics and the nature of economics as a discipline. Includes a description of the operation of resource markets and the American Economy. No credit if ECON 2201 or 2202 has been previously completed.

ECON 2201 3 Cr.

Principles of Macroeconomics

Studies the overall performance of the United States economy and comparative economic systems from the dimensions of full employment, price stability, and economic growth.

ECON 2202 3 Cr.

Principles of Microeconomics

Analyzes the decision-making process of the individual firm. The concepts of pricing and the allocation of resources within different market structures are explored through the use of case studies of industries.

ELECTRICAL CORE (ELCO)

ELCO 1100 3 Cr.

Electrical Circuits Fundamentals

This course covers the basic concepts of electricity. Included in the course will be a brief overview of electricity and electronics, a study of resistors, Ohm's Law, series and parallel circuits, voltage and current dividers, dc meters, Kirchoff's laws and network theorems, conductors and insulators, batteries, magnetism and magnetic units, electromagnetic induction, alternating voltage and current, capacitance, capacitive reactance, capacitive circuits, inductance, inductive reactance, inductive circuits, RC and L/R time constants, ac circuits, complex numbers, resonance, and filters.

ELCO 1101 3 Cr.

DC Circuits

The basic concepts of electricity. Including a basic study of safety, metric notation, atomic structure, Ohm's Law, series, parallel, and complex circuits.

ELCO 1105 3 Cr.

Electrical Circuits Fundamentals Lab

This course provides students with theoretical and practical experiences in electric circuits for both dc and ac using scientific method, analysis and deduction. Topics covered will be safety, resistor color code, meter use, Ohm's law, series and parallel circuits,

complex circuits, oscilloscope operation, alternating current and voltage, capacitance, capacitive reactance, capacitive circuits, inductance, inductive reactance, inductive circuits, RC and L/R time constants, ac circuits, resonance and filters, and transformers.

ELCO 1106 3 Cr.

AC Circuits

The basic concepts of AC circuits. Included is a basic study of electromagnetic principles, sine wave principles and relationships, resistive circuits, inductive circuits, capacitive circuits, circuit analysis, and resonance.

ELECTRICAL (ELEC)

ELEC 1145 1 Cr.

National Electric Code Refresher

ELEC 1200 5 Cr.

Residential Wiring I

This course covers electrical safety, general safety, and the use and care of hand tools, specialty tools, and equipment used for residential wiring. The course introduces basic wiring circuitry and the related N.E.C. articles for residential wiring. Also covered is an introduction to Service Entrance Equipment, N.M. and UF cables and their uses.

ELEC 1205 2 Cr.

National Electric Code I

This course will provide insight into an understanding of many of the technical rules of the NEC. Topics included are Minnesota licensing laws, definitions, requirements, and calculations for electrical installations, grounded conductors, branch circuits, feeders and services. Other topics also included are overcurrent protection, grounding and bonding, wiring methods, temporary wiring, and conductors for wiring.

ELEC 1210 5 Cr.

Residential & Farm Wiring II

This course covers electrical and general safety. This course introduces blueprint reading for residential wiring. Students will learn to identify parts and their uses. The course will also relate N.E.C. articles on branch circuits, feeders, grounding, services, and overcurrent protection to residential and farm wiring. Also covered will be specialty circuits such as ranges, dryers, air conditioners, etc. using a variety of wiring methods found in residential wiring. Prerequisite: ELEC1200.

ELEC 1215 2 Cr.

National Electric Code II

This course covers National Electric Code requirements for cabling, conduit, raceways and wireways, boxes, gutters, switches, and panelboards. Also included are the requirements for equipment such as cords and cables, fixtures and fixture wire, appliances, fixed space heating, motors and motor circuits, refrigeration equipment and transformers. Prerequisite: ELEC 1205.

<p>ELEC 1220 4 Cr. Conduit Installation This course is an introduction to the raceway types used in all types of wiring. Students will learn to thread, bend, and calculate raceway size and the number of wires permitted in a conduit. This course is also an introduction to hand benders and hydraulic benders. Students will also learn to identify fittings and other material used in installing a raceway system. Prerequisite: ELEC 1200.</p>	<p>ELEC 2210 2 Cr. National Electric Code III This course stresses the importance of safe, efficient and well designed systems for industrial, commercial, and residential locations. This course discusses material, methods, and components used in designing electrical systems. Prerequisite: ELEC 1205.</p>
<p>ELEC 1225 4 Cr. Electric Motors This course covers alternating current (AC) and direct current (DC) motors and generators/alternators. Theory of operation, connections, installation and maintenance will be covered in the lecture portion of the course. The lab will give students an opportunity to determine the load characteristics and connections of AC and DC motors and generators/alternators. Prerequisite: ELCO 1100.</p>	<p>ELEC 2220 2 Cr. Industrial Wiring This course covers the installation methods and materials used in industrial wiring. Topics included are transformer and motor selection, busways, grounding, power factor correction, distribution, hazardous locations, and troubleshooting. Prerequisite: ELEC 1220.</p>
<p>ELEC 1230 1 Cr. Safety Principles and OSHA This course covers various safety and laboratory practices that are common to the electrical trades and presents information on how to avoid unsafe practices.</p>	<p>ELEC 2225 4 Cr. Electric Motor Controls II This course covers reversing motor circuits, electromechanical and solid-state relays, photoelectric controls, proximity controls, reduced voltage starting, accelerating and decelerating methods and preventive maintenance. The lab. class will give the student the opportunity to hard wire and operate the control circuits. Students design control circuits and program smart motor controllers and variable frequency drives. Prerequisite: ELEC 2205.</p>
<p>ELEC 1235 2 Cr. Applied Electrical Calculations This course covers the necessary calculations for the solution of electrical circuit problems in the industry.</p>	<p>ELEC 2230 4 Cr. Programmable Logic Controllers This course covers the principles of how PLCs work and provides practical information about installing, programming, and maintaining a PLC system. Students will be given a wide range of generic programming assignments and exercises for practice with the PLC. Prerequisite: ELEC 2205.</p>
<p>ELEC 1240 5 Cr. Commercial Wiring This course introduces the material and design aspects of commercial wiring. Students will learn to read commercial blueprints. This course also covers voltage-drop calculations, motor calculations and service installations. Students will be introduced to the take off and estimating of commercial jobs. Students will also study the N.E.C. as it relates to commercial wiring.</p>	<p>ELEC 2235 2 Cr. National Electric Code IV This course covers electrical grounding and calculations. The course will give students a better understanding of grounding and simplify some of the code requirements for acceptable field installations of grounding. This will result in a safer electrical installation for people and equipment. Prerequisite: ELEC 1205.</p>
<p>ELEC 2200 3 Cr. Low Voltage This course will cover how electronic security systems and their various hardware components and sensors work. This course will also cover the rules and regulations of installation and termination of communication wire and components. Prerequisites: ELCO 1100.</p>	<p>ELEC 2250 3 Cr. Heating and Air Conditioning Controls This course introduces basic heating and cooling system installation and control. Topics included are installing heating and air conditioning systems, replacing controls, measuring instruments, and reading schematics.</p>
<p>ELEC 2205 4 Cr. Electric Motor Controls I This course covers electrical tools, instruments, safety, electrical symbols, line diagrams, AC manual contractors and motor starters, AC magnetic contractors and motor starters, time delay logic and control devices. Lab classes give students the opportunity to hard wire, test and trouble shoot common control circuits. Prerequisite: ELCO 1100.</p>	<p>ELEC 2260 3 Cr. Basic Refrigeration This course covers the theory and operation of refrigeration systems, air source and ground source heat pumps, heat gain and heat loss calculations. The student evacuates, charges, and troubleshoots a basic refrigeration system.</p>

POWERLINE TECHNOLOGY (ELPL)**ELPL 1100 3 Cr.
Pole Climbing and Equipment Operation**

This course covers climbing techniques, free-hand and with a safety strap. Students will also learn installation and removal of pole hardware, setup and safe operation of digger derricks, bucket trucks, hydraulic systems, and truck driving operations. Also included in the course is the operation of elbow and squirt booms, safety checkout and use of the lifting jib.

**ELPL 1106 3 Cr.
Electrical Distribution of Powerlines I**

This course covers the care and maintenance of personal tools, nomenclature and use of company tools, nomenclature and installation of pole line hardware, setting and aligning poles, stringing single phase and three phase wires, installation of armor rods, hand ties, and preform ties. The course also covers the change-out of single phase and three phase transformers, overhead secondaries and offers instruction in elementary knots and the use of different types of slings.

**ELPL 1110 3 Cr.
Reports, Records, and Accident Analysis**

This course covers types of accidents in the industry and the causes and prevention of accidents. A study of the N.E.S.C. with emphasis on Part Four, 'Safety of the Electrical Employee and Safe Working Rules of Electric Utilities' will be conducted. The student will learn the means of getting information that tells us what must be corrected so that future accidents may be avoided. The student will be required to be on a safety committee, from which they will be appointed to an accident investigation team. Also covered is preparation and reading of construction staking sheets, retirement staking sheets, equipment installation orders, and system map reading.

**ELPL 1116 3 Cr.
Electrical Distribution of Powerlines 2**

This course covers the application, care, and use of rubber goods, insulated coverup use, and the use of bucket trucks. This course also covers pole top insulator change outs, pole replacements, and conductor transfers all simulating the line being 'Hot'.

**ELPL 1121 3 Cr.
Electrical Distribution of Powerlines 3**

This course covers the function, operation, and types of fuses, circuit breakers, oil circuit reclosures and sectionalizers. Working with and around electrical equipment, and apparatus in substations will also be covered. Students will learn about the characteristics of transient voltages, types of distribution arrestors and safety. The course will also cover building overhead lines, stringing and sagging conductors, and ties and tying. Students will build OCR banks, capacitor banks, and three-phase transformer banks, work with underground distribution lines, connect sectional cabinets and pad-mounted transformers, and loop-feed URD lines. Chain saw safety, tree trimming, and pole-top and bucket rescue will also be discussed.

**ELPL 1125 3 Cr.
Three-Phase AC Circuits and Transformer Banking**

This course covers wye and delta circuit fundamentals, neutral on grounded wye lines, corner grounds on delta lines, and ungrounded delta lines. Also offered is three-phase transformer connections using single phase transformers, angular displacement, phase sequencing, paralleling of power bank secondaries, and trouble shooting transformer banks. The student will also learn how to find problems, how to fix them, and also how to get the different voltages out of a transformer bank that industry needs today. This course will also cover load balancing and the sizing of transformers from single residential use to a large industrial load.

**ELPL 1130 3 Cr.
'Hot' Sticking**

This course covers the application, care and use of 'Hot' sticks, and insulated cover up use. It will be done off the pole with belt and hooks. This course will include pole top insulator change outs, crossarm changeouts, replacements, and conductor transfers. The course will be taught simulating the line being 'Hot'.

**ELPL 1140 2 Cr.
Construction of Underground Powerlines**

Basic theory and design for the installation and construction of a high voltage underground system. Installing and constructing an actual underground system will be part of a lab project. System protection, sectionalizing, grounding procedures, and basic fault procedures on underground low and high voltage lines.

**ELPL 2235 2 Cr.
Special Topics: Overhead Safety, Construction & Maintenance**

This course covers all the elements of underground installation and maintenance with a strong emphasis on safety.

**ELPL 2236 2 Cr.
Special Topics: Underground Safety, Construction, and Maintenance**

This course covers all the elements of underground installation and maintenance with a strong emphasis on safety.

CONVERGENCE TECHNOLOGY (ELTL)**ELTL 1102 4 Cr.
Telecommunications I**

This course will provide students with a broad overview of the telecommunications industry. Instruction will provide students with knowledge and understanding of telecommunications history, terminology, tools, cable types, wiring components, basic fiber, coaxial cable, connector types, and basic telecommunications networks. This course prepares the student to be able to identify various types of telecommunications cable and connectors, to identify wire sequences by the telephone color code, to connect wire to various connecting devices and terminal blocks using proper

methods and tools, and to use general hand tools as needed in industry

ELTL 1103 3 Cr.
Telecommunications II

This course will provide students with an expanded view of telecommunication networks. Students will be given the opportunity to install, program, troubleshoot, and repair KSU/PBX phone systems. This course prepares the student to be able to identify, terminate, and apply connectors to some of the most advanced types of wire, cable, or media used in telecommunications. Customer premise equipment such as voice mail, paging, music on hold, and other devices will be installed as optional features. This course will provide the basics for business telephone switching systems. Prerequisite: ELTL1102

ELTL 1104 2 Cr.
Basic Digital Circuits

This course is a foundation course for digital and computerized equipment. Provides the students with an understanding and application of basic digital inverters, gates, and multivibrator devices. Digital codes, computer numbering systems and boolean algebra will also be discussed.

ELTL 1106 3 Cr.
Voice and Data Communications

This course will address the technology, equipment, and procedures used to transmit data from one location to another and how analog signals are converted to digital signals and how such signals can be transmitted over phone lines, fiber optics, and microwave. Starting with the basics, the class will progress through analog transmission, the use of modems, digital transmission techniques, T-1 digital carrier systems and local area networking. Prerequisite: ELTL 1102.

ELTL 1108 3 Cr.
Structured Communications Systems

This course covers structured communication systems (SCS). Students will gain practical experience in implementing many concepts in SCS by installing and terminating various cabling types, configuring voice/data and fire/alarm systems, and other equipment. The student will be able to install various SCS; select and operate the appropriate test equipment to perform test procedures; perform routine maintenance; perform minor troubleshooting procedures and repairs; identify and describe industry standards, protocols and safety procedures relating to structured communication systems.

ELTL 1113 4 Cr.
Outside Plant I

This introductory course covers the basic history of telecommunications from open wire to fiber optics. Telecom cable color codes, terminology, basics of the local loop, identification of faults, troubleshooting and various types of communication cables are covered. Other topics covered include splicing procedures, types of connections, terminals, closures, bonding, grounding, cable locates, installation and maintenance of cable, and pedestals. Prerequisite: ELTL 1102.

ELTL 2102 3 Cr.
Wireless Technologies

Through this course the student will gain an understanding of the organization and operation of modern cellular and PCS telephone systems, technical principles on which these systems are based. This course also covers the transmission and reception of satellite, TV, and microwave signals; the concepts of cellular communications switching and transmission techniques. Students are given the opportunity to study and test how microwave transmitters and receivers operate, and how the various components are utilized. Prerequisite: ELTL 1102.

ELTL 2105 3 Cr.
Transmission/Cable Types

The design of horizontal and vertical antennas, transmission lines, impedance matching, dipoles, ground planes, yagi arrays, polarization, vswr, and basic VHF/UHF band.

ELTL 2110 3 Cr.
Fiber Optics

A high technology course for the lay person. Covered is a wide range of applications including office equipment, cable television, bio-medical equipment, and consumer products.

ELTL 2113 3 Cr.
Outside Plant II

This course will present a detailed study of cable splicing and Outside Plant construction. The student will gain hands-on experience in the application of ready access, direct buried, pedestal-type closures, and the use of special splicing equipment, test sets, and fault locating equipment. Other topics covered in-depth are: bonding, grounding, cable locates and maintenance of cable. Prerequisite: ELTL 1113.

ELTL 2118 2 Cr.
Emerging Technology

This open lab research course will provide the student with an opportunity to study the concepts and applications of related technologies in the communications field that are being reviewed and experimented with today. Student presentations will address areas of interest in developing technologies and a detailed report about the advantage and disadvantage of the equipment. Applications and implications of the new discoveries will be discussed.

ELTL 2116 2 Cr.
Broadband Communications

This course will allow students gain knowledge in the repair and operation of cable communications (CATV) systems. Repair techniques and analysis using test equipment is stressed when servicing, installing, and maintaining CATV systems. Knowledge and skills required to properly complete a cable television installation. Overview of broadband cable systems and traces the signal from a source to a customer premises. Also covered: safety procedures, proper tool usage, installation techniques, signal level meter and multi meter operation, and basic cable TV

troubleshooting and satellite systems. Prerequisites: ELTL1102

ELTL 2117 **Voice over Internet Protocol** **3 Cr.**

Voice and data networks, once completely separate entities, are now being merged onto a single network as the Internet Protocol (IP) is increasingly combined with conventional telecommunications to create IP telephony. There are many aspects to consider when routing voice calls over the Internet. This course presents and explains the many and varied techniques, solutions, principles, and challenged both carriers and end users utilize, experience, and overcome in implementing Voice-over IP services.

ELTL 2200 **Convergence Technologies** **3 Cr.**

This course explains the functional requirements of a converged network, and shows how various technologies make convergence possible. It focuses on the critical need for increased bandwidth, introduces several emerging protocols and technologies and concentrates on practical applications of convergence.

ELTL 2235 **Special Topcs** **1-3 Cr.**

An open lab that will provide students a chance to work on equipment and projects.

ELECTRIC UTILITY (ELUT)

ELUT 1101 **Electrical and Rigging Safety** **2 Cr.**

ELUT 1105 **Blueprint, Schematics and Transit** **3 Cr.**

This course covers the use and interpretations of blueprints, schematic diagrams, plan and profile maps, and the symbols and abbreviations used in them. This course also covers the fundamentals for set-up, operation and use of a transit mounted on a tripod or other base.

ELUT 1110 **Transformer Banking I** **3 Cr.**

This course covers the construction, purpose uses and calculations for distribution transformers. Emphasis will be on installation of single or three-phase banking practices that are used in the private and public sector of the electric utility industry.

ELUT 1115 **Generation Transmission and Distribution** **3 Cr.**

Designed to simulate the Power Industry. Through the use of laboratory projects, students will receive background in understanding the concepts of generation, transmission and distribution of electric power.

ELUT 1120 **Specifications, Testing and Maintenance** **2 Cr.**

This course covers the procedures, specifications of testing methods, and maintenance used through out the electrical industry for new and refurbished equipment.

ELUT 2100 **Metering I** **2 Cr.**

This course covers single-phase metering principles, meter construction, component parts and the installation and testing of single-phase electric watt-hour meters. This course also includes the use of a meter test bench, test standards and an electric counter.

ELUT 2105 **Metering II** **2 Cr.**

This course is a continuation of Metering I. More emphasis is put into metering with instrument transformers, identification, testing and installation of three phase meters.

ELUT 2110 **Transformer Banking II** **3 Cr.**

This course is a continuation of Transformer Banking I. This course will look into single-phase power banks and auto transformers used in the transmission and distribution of small and large blocks of power.

ELUT 2135 **Enrichment 1** **2 Cr.**

This is a self study course. The student may select any three of the remaining four topics from Enrichment I and write an article about each selected topic. In each article the student will create and address eight goals.

ELUT 2140 **Enrichment 2** **2 Cr.**

This is a self study course. The student may select any three of the remaining four topics or create a topic that is acceptable with instructor from Enrichment 1 and write an article about each selected topic. In each article the student will create and address eight goals.

ELUT 2116 **Reclosures and Protective Equipment** **3 Cr.**

This course covers reclosures, circuit breakers and protective devices such as fuses, lightning arrests, cut-outs, sectionalizers and the related equipment.

ELUT 2121 **Protective Relays** **3 Cr.**

This course is designed to give a broad understanding of simple and complex relays that are used in the protection of high voltage lines and substations. Emphasis is on understanding design, construction, and application, performing testing, calibrating, cleaning and adjusting relays. The following relays will be studied if time allows: overcurrent induction disc, thermal overcurrent, induction disc voltage, over/under voltage, voltage restraint, percentage differential, and transformer differential relays.

ELUT 2126 **Regulators and Capacitors** **3 Cr.**

This course covers the methods used in producing a reliable power source by controlling voltage loss and power factor through the use of capacitors and/or regulators.

WIND ENERGY TECHNOLOGY (ELWT)**ELWT 1100** 2 Cr.**Wind Energy Fundamentals**

This course is a survey of the historical application of wind energy. This course will discuss how wind works, its reliability, economics and environmental implications. Also studied will be wind energy applications and basic operating principles. The status of the industries future will also be discussed.

ELWT 1105 1 Cr.**OSHA**

This course will provide students with information regarding basic safety principles energy industry. A brief overview of the Occupational Safety and health Administration (OSHA) and OSHA violations will be offered. The primary focus will be on several Occupational Safety and Health Administration (OSHA) regulations and standards. Students will examine various Federal and Minnesota OSHA regulations and complete the various lessons.

ELWT 1110 3 Cr.**Mechanical Systems**

Mechanical systems will be studied at the component level. Fasteners, lubrication and preventive maintenance activities will receive the major emphasis.

ELWT 1120 3 Cr.**Air Foils, Blades and Rotors**

Will provide an understanding of wind turbine aerodynamics and the various considerations that are involved when selecting air foils for use in blade design. Blade construction, assembly and repair techniques will be covered as well as performance, operation and maintenance characteristics.

ELWT 1130 3 Cr.**Drive Trains, Yaw Systems and Towers**

Turbine drive train, yaw systems and tower systems will be covered. Sub-system component attachments, alignment, operating characteristics, dynamics, and the maintenance considerations will be presented. Nacelle layout and the interaction between sub-systems will be discussed.

ELWT 1140 3 Cr.**Energy Systems**

This course will cover the various applications of wind generated power. Stand alone, water pumping and grid connected systems as well as hybrid power systems will be discussed.

ELWT 1150 3 Cr.**Wind Turbines**

Turbine types, their development and their current status will be presented. The evolution of current models/sizes offered by existing companies will be traced from earlier models/sizes. The operating experiences, track record and number of turbines in operation will be evaluated for the major players in the industry. Students will be expected to carry out research and present reports on selected turbines.

EMERGENCY MEDICAL SERVICES (EMS)**EMS 1101** 2 Cr.**Introduction to EMT Basic**

The introduction to Emergency Medical Technician Basic course follows the American Heart Associations BLS CPR for Healthcare Provider standards and the first portion of the current National Standard Curriculum, which is a core curriculum to be presented within a 32-hour training course. The EMT-B serves as a vital link in the health care chain of survival. This course includes all the introductory skills and classroom information necessary to provide Begin the EMT Basic Course. The EMT-Basic can be utilized in a BLS Ambulance service, or other specialized rescue agency. Modules presented include: (1) Preparation of the EMT-B, (2) Airway, (3) Patient Assessment (Scene size up, Initial Assessment, Vital Signs and Sample History). Upon successful completion of the Introduction to EMT-Basic course, the student will be eligible to continue with the EMT Basic Completion Course.

EMS 1102 4 Cr.**EMT Basic Completion Course**

The Emergency Medical technician - Basic Completion course follows the current National standard Curriculum, which is a core curriculum to be presented within 84-hour training course, the EMT-B serves as a vital link in the health care chain of survival. This course will include all skills and classroom information necessary to provide emergency care at the Basic Life Support level. The EMT-Basic can be utilized in a BLS Ambulance service, or other specialized rescue agency. Modules presented include: (1) Patient Assessment (medical and trauma), (2) Medical Behavioral Emergencies and OBGYN, (3) Trauma (4) Infants and Children, (5) Ambulance operation, (6) Interventions (medications and semi-automatic defibrillation). Upon successful completion of the Introduction to EMT Basic and the EMT-Basic Completion course, the student will be eligible to take the National Registry of EMTs written and practical examinations.

EMS 1104 1 Cr.**EMS Wilderness Emergency Care**

This course is designed to upgrade EMS personnel to function in a wilderness environment where transport is delayed if not impossible due to location and or circumstance. Long term patient care management, and definitive care skills will be taught and practiced in both the classroom and field environments. Specialty skills and familiarity with SAR techniques, survival concepts, and situational assessment, as well as long view problem solving are the keys to extended patient care in often hostile environments placed on the body systems in both healthy individuals and those challenged by trauma or illness can be vital when you, the rescuer, are the only care available.

EMS 1105 1 Cr.**EMS Wilderness Outdoor**

This course will complete the upgrade for EMS personnel to function in a wilderness environment where transport is delayed if not impossible due to

location and or circumstance. The Long term patient care management and definitive care skills taught in the class room will be accomplished in the field environment. The ability to recognize and manage stress extreme environments placed on the body systems in both healthy individuals and those challenged by trauma or illness can be vital when you the rescuer, are the only care available.

EMS 1106 **American Heart CPR Instructor** **1 Cr.**

This course is designed for the health care provider to take their BLS CPR certification to a new level. It will give the individual the skills and information necessary to be a certified instructor in CPR. In addition it will cover the new AHA2000 Guidelines and the Science behind those changes. You will receive all the necessary information on the Customized Training Centers available for membership and the criteria to maintain this certification.

EMS 1107 **Emergency Response to Terrorism** **1 Cr.**

This program is designed to benefit industry and emergency management personnel; addressing the first 4 hours of response to a terrorist event. The goal of the program is to emphasize the planning aspect of response. Terrorist incidents that involve biological, nuclear, incendiary chemical or explosive materials are a daily occurrence in metropolitan areas, and with the current condition in our world today could soon hit the rural areas. This timely course has been developed by the U.S. Department of Justice and The Federal Emergency Management Agency. In addition it will include instructional material on The Incident Command Center it purpose, structure, personnel, and duties at a Critical Incident.

EMS 1108 **Basic Trauma Life Support** **1 Cr.**

This course is designed for the health care provider who must evaluate and stabilize the trauma patient in or out of the hospital. The goal of the program is the planning and development of an organized approach to the treatment of trauma patients using a TEAM concept to manage this often emotional and difficult situation. Since time is critical in the management of the trauma patient, this course is intended to present the skills necessary for rapid assessment, resuscitation, and when necessary, the packaging and preparation for transport to another facility. In addition this course covers information on Advanced Spinal Care issues and care for the adult and pediatric trauma patient.

EMS 1109 **Advanced Cardiac Life Support** **1 Cr.**

This is for the professional health care provider at any level. The class will focus on the management of acute cardiovascular emergencies that require rapid and decisive actions by the health care team. Emphasis will be placed on the TEAM approach so the effective continuum of cardiac care can be provided from the pre-hospital environment and emergency department through the more definitive care that is provided in the cardiac care unit. The material is presented in a logical

order that lends itself to continuous reinforcement of previously learned information. The class will cover cardiac rhythm interpretation, drug dosages, electrical therapy, and intubation for airway control. The class is conducted in a non-threatening environment, and at a pace that will provide enough time for the caregiver to gather key information to build a suitable knowledge base for comprehension of algorithms used in treating acute cardiac emergencies.

EMS 1110 **First Responder Basic** **3 Cr.**

This course is designed to deliver essential training that will give individuals the knowledge and skills necessary to begin critical assessments and to provide immediate care for patients at the scene of an injury, illness or emergency. The didactic portion of this course is completed online through highly innovated technology including, interactive full motion video, audio, text, virtual reality and scenarios. In addition, there are 4 skills training/check off blocks scheduled throughout the course. These Skill Blocks are mandatory and will be located at designated sites. Upon successful completion of this course the student will be registered with the State of Minnesota as a First Responder and will be eligible to take a First Responder to EMT Bridge course through any MNSCU institution.

EMS 1111 **IV Therapy & Shock Management** **1 Cr.**

This 16 hour program will prepare the health care provider to establish IV therapy for patients who need fluid volume replacement, blood draws, or venous access for the administration of medications. Upon completion the student will be able to select the IV fluid for initial volume replacement, compute IV flow rate calculations given the overall time period, and the administration set to be used. Complications of IV therapy and how to reduce the possibility of occurrence, will be presented. A major goal of the program will be recognizing the different stages of shock, the prevention of, and treatment for the low perfusion state. The definition of an treatment for respiratory acidosis will be explained and a review of the cardiovascular system, blood components, and their main function will be discussed.

EMS 2101 **EMT Refresher** **2 Cr.**

This course is designed to refresh students at the Emergency Medical Technician-Ambulance (EMT-B). It is recognized that training at all levels of the health care team is necessary for effective patient care. It is also recognized that the majority of prehospital emergency care will be provided by the Emergency Medical Technician Basic. This includes all skills necessary for the individual to provide emergency care at the basic life support level with an ambulance service or other specialized rescue service. This course is a refresher for those EMTs that have successfully completed a basic EMT course and carry a current certification as an EMT-B. Prerequisite: Certified EMT and a current CPR certification.

EMS 2103 **1 Cr.**
First Responder Refresher
 This course was developed to provide refresher training in emergency medical care for those who are apt to be the first persons responding to an accident. In defining course scope and emphasis, it was decided that students should possess the same knowledge of patient care as an EMT, but not the same equipment skills. While emergency care is not likely to be first responders primary responsibility in the community, this individual can play an active role in the community's emergency medical services system. As the first person at the emergency scene, the first responder must be completely knowledgeable about basic principles of emergency medical care, and must know what should, as well as what should not, be done.

ENGL 2202 **3 Cr.**
Survey of American Literature
 Introduces prominent American writers and influential works that have shaped American cultural identity from Mark Twain to the present. The course takes a broad view of the traditional canon to include writers and works from many areas of America's past. Instructors recommend that students complete ENGL1105 or an advanced high school literature class before registering for this course.

ENGL 2203 **3 Cr.**
Midwest Literature
 Introduces students to the rich and diverse body of Midwestern literature through the exploration of poetry, fiction, nonfiction, and drama. The course will also address various cultural, historical, and geographical matters relating to Midwestern literature, and the significance of Midwestern literature, both in particular and in general terms.

ENGLISH (ENGL)

ENGL 0090 **2 Cr.**
Essentials of Writing
 Introduces parts of speech, phrases, clauses, types of sentences, common sentence errors, punctuation, capitalization and spelling. Students write sentences to demonstrate an understanding of these basic skills.

ENGL 2221 **3 Cr.**
Survey of British Literature I
 Studies the principal British writers, their literary forms, and significant currents of thought. Provides both an introduction to British literature and a background that will be useful in the study of other literature and cultural history from Beowulf through the 18th Century. Instructors recommend that students complete ENGL1105 or an advanced high school literature class before registering for this course.

ENGL 1101 **3 Cr.**
Composition I
 Reviews and reinforces basic essay writing principles. Emphasis is on rhetorical modes of development and writing as process. Assignments include a short library paper. Prerequisite: ENGL 0090 or placement through assessment test or prior college coursework.

ENGL 2222 **3 Cr.**
Survey of British Literature II
 Studies the principal British writers, their literary forms, and significant currents of thought. Provides both an introduction to British literature and a background that will be useful in the study of other literature and cultural history from Romanticism through the 20th Century. Instructors recommend that students complete ENGL1105 or an advanced high school literature class before registering for this course.

ENGL 1102 **3 Cr.**
Composition II
 Emphasizes the techniques of research, proper use of information resources, critical thinking, and writing style. Assignments will include a major research paper. Prerequisite: ENGL 1101.

ENGL 1103 **1 Cr.**
Research Papers
 Reviews and reinforces principles of writing research papers. Emphasis is on process, analysis, and formatting. Assignments include an academic research paper. Prerequisite: Instructor consent.

ENGL 2231 **2 Cr.**
Classical Mythology
 Introduces students to Greek mythology through classical texts and contemporary criticism. In addition to studying the myths themselves, lectures will focus on the functions of myths and the continuing importance of Greek mythology. Prerequisite: ENGL 1105, an advanced high school literature class, or consent of instructor.

ENGL 1105 **3 Cr.**
Introduction to Literature
 Studies the elements, form and content of fiction, drama and poetry.

ENGL 2201 **3 Cr.**
Survey of American Literature I
 Introduces prominent American writers and influential literary works that have shaped American cultural identity from the colonial period through the Civil War. The course takes a broad view of the traditional canon to include writers and works from many areas of America's past. Instructors recommend that students complete ENGL1105 or an advanced high school literature class before registering for this course.

ENGL 2235 **1-3 Cr.**
Special Topics in Literature
 Introduces students to specialized areas of literature. topics may include literature associated with specific regions, historical periods, subcultures, economic groups, business, or social movements. the class may be retaken for credit if the topic varies. Prerequisite: ENGL 1105, an advanced high school literature class, or consent of instructor.

ENGL 2243 **3 Cr.**
Composition: Creative Writing
Provides instruction and experience in keeping a writer's journal and composing and editing poetry and short fiction. The class is conducted in an informal, workshop atmosphere. Students will also write a literary research paper. It can be substituted for ENGL 1102. Prerequisite: ENGL 1101.

ENGL 2276 **3 Cr.**
Composition: Technical Writing
Examines types of professional writing. Students will complete assignments aimed at helping them develop comprehensive technical writing skills. Includes using library materials and writing a research paper. Can be substituted for ENGL 1102. Prerequisite: ENGL 1101.

ENGINEERING (ENGR)

ENGR 1101 **1 Cr.**
Introduction to Engineering
An introduction to the study of engineering. This course highlights the keys to success in engineering study, a description of the engineering profession, academic success strategies, and orientation to the engineering education process.

ENGR 1110 **3 Cr.**
Auto CAD Level I
This course introduces the student to computer-aided drafting and design utilizing the current version of AutoCAD. The AutoCAD topics covered in this Level 1 course include: an introduction to AutoCAD features, starting and setting up drawings, ergonomics, point coordinate entry methods, creation of basic 2D drawing objects, layer management, linetypes and colors, selection sets, object snap modes, AutoSnap, polar tracking, object snap tracking, construction techniques, creating and managing text objects, editing geometry, display control and drawing inquiry methods. Students completing this course successfully will have the basic AutoCAD knowledge needed to begin a career in Computer-Aided Drafting and Design. This basic knowledge is needed prior to specializing in a certain area of drafting such as mechanical, civil, electrical, architectural or structural.

ENGR 2214 **3 Cr.**
Engineering Mechanics - Statics
This course includes vector resultants of force systems in two and three dimensions, equilibrium of forces, analysis of forces acting on structural and machine elements, friction, moments of inertia, and virtual work. Prerequisites: PHYS 2121 and MATH 1122 (or concurrent)

ENGR 2215 **3 Cr.**
Engineering Mechanics-Dynamics
This course includes vectorial kinematics and kinetics, absolute and relative motion, force-mass acceleration relations, potential and kinetic energy, work, power, impulse, momentum, conservation of energy and momentum. Application to particles, particle systems, and rigid bodies will be studied. Prerequisite: ENGR 2214.

ENGR 2235 **1-4 Cr.**
Special Topics in Engineering
Introduces students to specialized topics in the engineering field. Topics cover a wide range of issues of current interest and will be chosen to meet the needs of students. The course may be retaken for credit if the topic changes.

ENGR 2240 **3 Cr.**
Circuit Analysis I
This course is an introduction to electrical circuit theory, circuit variables, circuit elements, simple resistive circuits, Ohm's and Kirchoff's Laws, mesh and node circuit analysis, the use of circuit theorems, and the operational amplifier. Also emphasized are the topics of inductance, capacitance, mutual inductance, response of first-order RC and RL circuits and natural step responses to RLC circuits. The computer program PSPICE will be used for circuit simulation. Prerequisites: PHYS 2122 and MATH 1122.

ENGR 2241 **1 Cr.**
Circuit Analysis I - Lab
Laboratory to accompany Circuits Analysis I. Circuit analysis concepts are reinforced by laboratory experiments in which the theories are verified. Taught concurrently with Circuit Analysis I: ENGR 2240

ENGR 2250 **3 Cr.**
Circuit Analysis II
A continuation of Circuit Analysis I to include special topics in circuit analysis to include sinusoidal analysis, phasors, sinusoidal steady-state response, average power, root-mean square values, polyphase power, complex frequency, frequency response, and two-port networks. Prerequisites: ENGR 2240, ENGR 2241 and MATH 2205.

ENGR 2251 **1 Cr.**
Circuit Analysis II - Lab
Laboratory to accompany Circuits Analysis II. Circuit analysis concepts are reinforced by laboratory experiments in which the theories are verified. Taught concurrently with Circuit Analysis II: ENGR 2250.

ENGLISH AS A SECOND LANGUAGE (ESL)

ESL 0090 **3 Cr.**
Listening and Speaking
Provides the ESL student the opportunity to improve listening and speaking skills. The focus is on notetaking, weekly speaking and listening exercises, increasing vocabulary, and comprehension.

ESL 0091 **3 Cr.**
Reading and Writing
Provides the ESL student the opportunity to improve reading and writing skills. Emphasis is on word recognition, vocabulary, pronunciation, and comprehension. Emphasis in writing is on grammar, spelling and structure.

Estetician (ESTH)**ESTH 1100** 3 Cr.**Estheology Clinic/License Preparation**

This course prepares students for their written examinations and skill certification. (Prerequisites: completion of or concurrent enrollment in COSM1100, COSM1120, COSM1135)

For course descriptions on Farm Business Management courses (FBMA & FBMT) go to: www.mgt.org

FLUID POWER TECHNOLOGY (FLPW)**FLPW 1100** 4 Cr.**Fluid Power Hydraulic Theory**

Introduction to basic hydraulic concepts, formulas, and applications of hydraulic components used for directional, flow and pressure control of circuits. Also provides students with the knowledge and understanding of the operation, function, and application of hydraulic pumps, continuous rotation motors, limited rotation motors, and cylinders.

FLPW 1110 2 Cr.**Fluid Power Hydraulic Calculations**

The application of math concepts are used to calculate basic system parameters such as lifting force, pressures, horsepower, time, velocities, tubing sizes, unloading systems, and various parameters for hydraulic pumps and motors.

FLPW 1125 2 Cr.**Industrial Electro-Mechanical Control Theory**

Introduction to basic electrical theory, relay control circuits, and electrical motor starters for controlling fluid power systems.

FLPW 1130 4 Cr.**Electrical/Pneumatic Lab**

Students develop skills in wiring, troubleshooting, operation, and identification of electro-mechanical components and control circuit. They will design, plumb and operate basic pneumatic circuits. Concurrent with FLPW1120 and FLPW1125.

FLPW 1135 2 Cr.**Fluid Power Fabrication**

Develop skills necessary to bend tubing, produce hose assemblies, and other tasks used in a fluid power shop. Students will develop skills necessary to fabricate components using engine lathes, milling machines, surface grinders, and other machine tools.

FLPW 1115 2 Cr.**Hydraulic Schematic Circuitry**

Provides students with the knowledge and understanding of the skills necessary to design and produce mechanical blueprints, hydraulic circuit drawings, and drafts using drafting equipment and AutoCad software.

FLPW 1131 3 Cr.**Fluid Power Lab II**

An opportunity to develop skills in plumbing, troubleshooting, and operation of basic pneumatic circuits and hydraulic circuits, as well as basic fluid power fabrication. Concurrent with FLPW1120.

FLPW 1105 3 Cr.**Fluid Power Hydraulic Lab**

The students will work with some of the basic equipment and learn the fundamentals and basic hydraulic valves of fluid power. They will also study various flow controls, pumps and motors. Students will tear down, plumb and operate the various components.

FLPW 1120 3 Cr.**Fluid Power Pneumatics & Accessories**

This course will cover hydraulic accessories and introduce the student to pneumatic components and circuits.

FLPW 1205 1 Cr.**Basic Hydraulics**

This course covers basic hydraulic components and circuits. It will also cover calculations associated with those components and circuits.

FLPW 1210 1 Cr.**Basic Pneumatics**

This course will introduce students to pneumatic components and functions.

FLPW 1215 1 Cr.**Basic Automation Controls for Pneumatics**

This course covers basic electro mechanical systems and programmable logic controllers.

FLPW 1300 4 Cr.**Fluid Power Hydraulic Theory**

Introduction to basic hydraulic concepts, formulas, and applications of hydraulic components used for directional, flow and pressure control circuits. Also provides students with the knowledge and understanding of the operation, function, and application of hydraulic pumps, continuous rotation motors, limited rotation motors, and cylinders.

FLPW 1400 4 Cr.**Pneumatics for Robotics**

This course covers pneumatic components and circuits used in the field of robotics.

FLPW 2100 3 Cr.**Advanced Systems Calculations**

Provides students with knowledge and skills of sizing systems in both mobile and industrial applications.

FLPW 2105 4 Cr.**Advanced System Lab I**

Allows the student to design, plumb, and operate various advanced hydraulic, pneumatic, and electrical control circuits.

FLPW 2110 Circuit Design and Control Theory Students receive instruction in hydrostatic, mobile valving, pump controls, and power steering.	3 Cr.	FLPW 2150 Technical Independent Study II An open lab that provides students the chance to work on equipment and projects. This course will not count towards the graduation requirements in Fluid Power. Consent of advisor.	2 Cr.
FLPW 2115 Corporation Networking The business procedures and applications of the fluid power field. Students work with all the primary functions of a fluid power distributor.	2 Cr.	FLPW 2155 Technical Independent Study III An open lab that provides students the chance to work on assignments or projects. This course will not count towards the graduation requirements in Fluid Power. Consent of advisor.	2 Cr.
FLPW 2116 Corporation Networking and Sales This course will explore the business procedures and applications of the fluid power field. Students work with all the primary functions of a fluid power distributor, especially the customer service area. The DISC system will be utilized in all areas of the course. Prerequisites: FLPW 1100 and FLPW 1120 or instructor's approval.	3 Cr.	FLPW 2160 Technical Independent Study IV An open lab that provides students the chance to work on assignments or projects. This course will not count towards the graduation requirements in Fluid Power. Consent of advisor.	2 Cr.
FLPW 2120 Fluid Power Technical Support/Sales This course covers information on the inside sales technician. The course covers use of product literature combined with sale techniques to be used in industry.	2 Cr.	FLPW 2165 Review for FP Certification Test Students review all parts of Fluid Power to help them prepare for the Fluid Power Specialist certification Test.	1 Cr.
FLPW 2126 Systems Analysis Provides students with knowledge of how components interact with each other in systems and what may cause them to malfunction. (Prerequisite: FLPW2100)	4 Cr.	FLPW 2170 Second Year Technical Project This class can be used for the technical elective category in second year. The student will build a project that combines previous training in the different Fluid Power Technology classes.	2 Cr.
FLPW 2130 Advanced Systems Lab II Advanced lab jobs in the following job related areas: sales, air logic, engineering, lab technician, servo/proportional valves, fabrication, and service.	4 Cr.	FLPW 2175 Pneumatic Certification Review Students review all parts of Fluid Power to help them prepare for the PNEUMATIC SPECIALIST certification test. Prerequisites: Enrolled in Fluid Power or a past graduate of Fluid Power or working in the field of Fluid Power.	1 Cr.
FLPW 2136 Programmable Logic Controls Students receive an understanding of and the ability to use solid state programmable logic controllers and circuits to control and power phases of industrial automation.	3 Cr.	FLPW 2180 Hydraulic Certification Review Students review all parts of hydraulics and help them prepare for the HYDRAULICS SPECIALIST certification test. Prerequisites: Enrolled in Fluid Power or a past graduate of Fluid Power or working in the field of Fluid Power.	1 Cr.
FLPW 2141 Proportional & Servo Control Theory Provides students with knowledge and working skills dealing with electronic control of electro-hydraulic proportional and servo controls.	2 Cr.		
FLPW 2142 Proportional & Servo Control Lab Provides students with hands on skills dealing with electronic control of electro-hydraulic proportional and servo controls. (Prerequisite: FLPW2141)	1 Cr.		
FLPW 2145 Technical Independent Study I An open lab that provides students the chance to work on assignments or projects. This course will not count towards the graduation requirements in Fluid Power. Consent of advisor.	2 Cr.		
GEOGRAPHY (GEOG)			
		GEOG 1100 Introduction to Geography Introduces various aspects of geography. Emphasis will be given to cartography, climatic elements and population geography. Place-location will be covered in detail through the use of the atlas as a learning tool.	3 Cr.
		GEOG 1101 Introduction to Physical Geography Studies the physical elements of the environment emphasizing earth-time relationships and their relationship to people, measurement of time and distance, elements of weather, climate and land form development. Prerequisite: STSK 0095 or evidence of	4 Cr.

college level reading ability through assessment test or prior college coursework.

GEOG 2140 **3 Cr.**
Introduction to Meteorology

Develops a basic understanding of atmospheric processes, weather systems, weather maps and forecasting. GEOG 1101 recommended. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

GEOG 2250 **3 Cr.**
Minnesota Geography

Studies Minnesota's geology, landforms, climate, mineral and rock resources, agriculture, industry and people. Special emphasis will be given to landscape development. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

GENERAL STUDIES (GSCL) (GSCM) (GSSS)

GSSS 1100 **2 Cr.**
Human Relations

Designed to assist students in developing and maintaining healthy relationships within the family, social, and work structures. Self-esteem, assertive behavior, and stress management will be covered.

GSCL 1105 **1 Cr.**
Job Seeking Skills

A highly individualized approach to developing the critical actions and attitudes involved in job seeking and keeping. In this course students will create a personal inventory and a resume, write job application letters, complete a job application form, and prepare for employment interviews.

GSCM 1120 **2 Cr.**
Technical Writing

This course covers both internal and external reports used in business and industry such as proposals, abstracts, interoffice communications, and technical reports. Students are exposed to formats, visuals, and documentation methods used in technical report writing. Students study writing as a process while researching and writing technical reports.

HEALTH CORE (HC)

HC 1100 **1 Cr.**
Nutrition

Basic concepts of normal nutrition are presented. These concepts are applied to human needs throughout the lifespan cycle. The emphasis is on the application of these concepts in practical nursing.

HC 1115 **2 Cr.**
Medical Terminology

Designed to assist students in developing a basic understanding of the normal structure and function of the body. Such knowledge is basic to understanding common disease processes. Students also learn to recognize and build medical terms after learning the meaning of word parts.

HC 1151 **3 Cr.**
Body Structure & Function

Designed to assist students in developing a basic understanding of the normal structure and functioning of the body. Such knowledge is basic to understanding common disease processes. Students also learn to recognize and build medical terms after learning the meaning of word parts.

HC 1165 **1 Cr.**
Medical Terminology

Teaches the student to recognize and build medical terms after learning the meaning of word parts. The student will also learn to pronounce word parts, enabling them to pronounce medical terms.

HC 1160 **3 Cr.**
Fundamentals of Nursing I

Introduction concepts of basic human needs, health/illness and basic nursing skills in caring for the elderly client. Skills are demonstrated in a supervised laboratory and clinical environment.

HC 1175 **3 Cr.**
Nurse Assistant/Home Health Aide

Introduces concepts of basic human needs, health/illness and basic nursing skills. Skills are demonstrated in a supervised laboratory setting and in a clinical environment. This course also covers introduction to home care. Topics include care of the child, reporting procedures, caring for special populations, homemaking skills, and hospice care.

HC 1200 **4 Cr.**
Health Core Curriculum

This course is designed to prepare students and incumbent workers to the ever changing healthcare workplace with an emphasis on patient and direct care. These topics are included: legal and ethical issues, communication, self awareness, safety and standard precautions, successful behaviors in the workplace.

HC 1290 **1 Cr.**
Health Care & Society

Provides a basis for intellectual, practical and ethical decision making. The fundamentals of bioethics, ethical codes and legislation affecting a health professional practice, patient protection issues, professional boundaries, and legal basics are explored. Cultural and spiritual perspectives are discussed.

HC 2120 **3 Cr.**
Disease Conditions

Introduces basic principles of disease and the study of disease by body system. The signs and symptoms, etiology, diagnosis, and treatment of each disease is explored; and prevention of disease is emphasized. Medical terminology and anatomy/physiology knowledge acquired in previous courses is applied. Prerequisite: BIOL 2245 or HC1151 or consent of instructor.

HISTORY (HIST)**HIST 1101** 4 Cr.**American History I**

Presents a survey of United States history from about 1500 to 1877 and encompasses political, economic, social, intellectual and cultural developments. Human diversity in the historical and cultural context of American history is also addressed.

HIST 1102 4 Cr.**American History II**

Presents a survey of United States history from about 1877 to the present and encompasses political, economic, social, intellectual and cultural developments. Human diversity in the historical and cultural context of American history is also addressed.

HIST 1105 3 Cr.**Minnesota History**

Presents a historical survey of Minnesota beginning with a consideration of the significance of glaciers and geography and then studying the various people who chose Minnesota starting with the Ojibwa and Dakota. Major emphasis is on the nineteenth and twentieth centuries. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HIST 1111 3 Cr.**Western Civilization I**

Surveys European history from about 1500 to about 1848 and encompasses political, economic, social, intellectual and cultural developments. The course may be taken for either Social Science or Humanities credit; the course also counts as a Global Perspective course.

HIST 1112 3 Cr.**Western Civilization II**

Surveys European history from about 1848 to the present and encompasses political, economic, social, intellectual and cultural developments. The course may be taken for either Social Science or Humanities credit; the course also counts as a Global Perspective Course.

HIST 2235 1-3 Cr.**Special Topics**

Covers a wide range of issues of current interest. Topics will be chosen to meet the needs of students. This class may be retaken for credit if the topic varies. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HEALTH (HLTH)**HLTH 1101** 3 Cr.**Personal Wellness**

Focuses on individual wellness from a holistic perspective. Surveys personal health concerns within each of the five human health dimensions - physical, social, intellectual, emotional, and spiritual. Emphasizes the knowledge, attitudes, and behaviors of a positive lifestyle. Designed for anyone interested in enhancing their well-being. Often a required

component of programs in health, human service, and education careers. Required of all MN West A.A. degree candidates.

HLTH 1110 3 Cr.**Dimensions of Community/Public Health**

Introduces the field of community/public health. Acquaints students with the variety of health agencies in the public and private sectors and surveys current social health issues. Examines public health policy, health care systems in the US and abroad, epidemiology and disease prevention in communities, and health promotion in various settings/populations. A foundation course for careers in allied health, community health, and other service professions. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HLTH 1115 1 Cr.**Community CPR and First Aid Basics**

Provides training in the recognition of and care for life threatening emergencies. Designed for the lay public, this course includes skills in adult, child, and infant obstructed airway care, rescue breathing, CPR, bleeding control, immobilization of injuries, and caring for sudden illness. Students may earn American Red Cross certification in Community CPR (valid for 1 year) and First Aid Basics (valid for 3 years).

HLTH 1116 1 Cr.**CPR/First Aid Review**

Designed for currently certified individuals required to update their CPR and/or other first aid training in adult, child, and infant skills. This course offers opportunities to review skills and retest for recertification in American Red Cross Community CPR, CPR for the Professional Rescuer, and/or Community First Aid & Safety. (Students may also renew Adult CPR, Infant & Child CPR, and Standard First Aid certificates as well.)

HLTH 1117 1 Cr.**CPR/AED for the Professional Rescuer**

Provides training in the recognition of and care for life threatening emergencies. Designed for anyone whose career, job description, or volunteer position requires them to respond to emergencies (nurses, law enforcement officers, teachers, coaches, lifeguards, day care providers, designated worksite safety officers, etc.) This course includes skills in adult, child, and infant obstructed airway care, rescue breathing, use of breathing devices, 1- and 2- person CPR, and use of an automated external defibrillator (AED).

HLTH 1120 3 Cr.**Comprehensive First Aid**

Provides comprehensive, in-depth first aid knowledge and skills necessary to respond to both life-threatening and non life-threatening emergencies. Designed for both the lay public and individuals whose career, job description, or volunteer position requires them to respond to emergencies. All of the skills for CPR/AED for the Professional Rescuer course (HLTH 1117) and those in the Community CPR and First Aid Basics course (HLTH 1115) are included in greater detail

along with additional first aid topics. Students may earn American Red Cross certification in CPR/AED for the Professional Rescuer (valid for 1 year) and First Aid - Responding to Emergencies (valid for 3 years). Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HLTH 1130 **3 Cr.**
Stress Management and Relaxation

Provides a foundation for understanding the role of stress in the modern human condition. Mind/Body/Spirit interrelationships and the emerging sciences of psychoneuroimmunology and subtle anatomy will be introduced. Experiential exploration of numerous coping skills and relaxation techniques is emphasized.

HLTH 2210 **3 Cr.**
Human Sexuality

Explores the diverse physical, social and psychological aspects of human sexuality at all life stages within the framework of solid scientific research and critical thinking. Topics include sexual anatomy and physiology, attraction and intimate relationships, gender issues, forms of healthy sexual expression and behaviors, fertility management, STD's, sexual dysfunction, atypical sexual behaviors, sexual coercion, and commercial sex. Opportunities to clarify personal values and decisions regarding one's sexual health are woven throughout. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HLTH 2220 **3 Cr.**
Drugs, Society, and the Individual

Explores relationships between drugs, sociocultural influences, and individual attitudes and behaviors. With an emphasis on psychoactive chemicals, this course surveys the physiological effects and psychosocial impact of a wide array of drugs. Investigates patterns of drug use; drug laws, consequences of drug abuse; addiction, intervention, treatment, recovery, and prevention strategies from both individual and social perspectives. Meets the MN teacher licensure requirement for MS122A.66 and is a foundation course for those seeking careers in education, health, and other human services professions. Prerequisite: At least one (1) of the following courses: HLTH 1101, PSYC 1101, SOC 1101, OR BIOL 1100 OR 1110.

HLTH 2235 **1-3 Cr.**
Special Topics

Explores a single health topic or current health issue; offerings based on student interest and demand. Course may be repeated as topic changes.

HLTH 2240 **3 Cr.**
Basic Nutrition

Introduces the study of food and human dietary patterns. Examines sources of nutrients, how they are processed in the body, body composition, current dietary guidelines and nutritional issues, the impact of socio-cultural factors on diet, and the impact of dietary choices on health. Prerequisite: STSK 0095 or evidence of college level

reading ability through assessment test or prior college coursework.

HUMAN SERVICES (HSER)

HSER 1101 **2 Cr.**

Introduction to Human Services

Introduces students to the field of human services, from its historical background to current trends and issues. Emphasis is given to various models of helping, the roles and career options of human services workers, familiarization with local human service agencies, and professional ethics and responsibilities.

HSER 1111 **3 Cr.**

Sign Language I

Introduces the American Sign Language (ASL) and how it differs from other sign language systems. Focuses on enabling the student to gain a basic working vocabulary for interpersonal communication. Introduces the student to Deaf Culture.

HSER 1112 **3 Cr.**

Sign Language II

Emphasizes expanding the student's working knowledge of American Sign Language and Deaf Culture. Focuses on interpersonal communication skills in ASL without using the student's verbal skills. Prerequisite: HSER 1111 or consent of instructor.

HSER 1121 **3 Cr.**

American Sign Language I

Students will learn basic ASL communication strategies used by the Deaf. Course includes: expressive and receptive sign activities, sign vocabulary, fingerspelling and numbers, and aspects of Deaf culture. ASL Levels One - Four are designed for students interested in becoming certified Sign Language interpreters. This course is offered on-line only.

HSER 1122 **3 Cr.**

American Sign Language II

Students will continue to learn basic ASL, grammatical structure, fingerspelling and numbers, conversational strategies, and Deaf history and culture. ASL Levels One - Four are designed for students interested in becoming certified sign language interpreters. This course is offered on-line only.

HSER 1131 **1 Cr.**

Autism Spectrum Disorders

Focuses on an introduction to Autism Spectrum Disorders (ASD). Students will be given a history of ASD; an overview of the disorder as it is recognized today; diagnostic criteria for and behavioral characteristics of the specified disorders on the spectrum of autism including. Rett's Disorder, Childhood Disintegrative Disorder, Classic and High Functioning Autism, and Asperger's Syndrome. Current research; current trends in treatment, instructional strategies, current State and Federal mandates; parent support and cultural variables will also be presented.

HSER 1132 2 Cr.

Behavior Management

Introduces basic principles of behavior management as it relates to the school setting. Behavioral excesses and deficits, and maladaptive and aggressive behavior will be the primary focus. Topics include the characteristics of behavior management; proactive intervention procedures; shaping; prompting; and fading; reinforcement procedures and schedules of reinforcement will also be presented. Functional Behavioral Assessment (FBA) will be a primary focus throughout the course. In addition, current State and Federal mandates will be addressed. Students who have taken PSYC 2230 - Behavior Modification should not take this course. This course cannot be substituted for PSYC 2230 - Behavior Modification.

HSER 1262 2 Cr.

Creative Activities for Young Children

Explores means of developing children's creativity in art, music, drama. Students learn to design age-appropriate activities with paints, chalk, wood, paper, dough, song, dance, instrument, puppets and related material. Required course for Human Services - Child Development Track majors. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HSER 1266 2 Cr.

Foundations of Child Development

Teaches how to design and use developmentally appropriate language and cognitive-growth activities, including how to encourage curiosity, exploration and problem-solving; to develop sensory and story-telling skills; how to teach concepts such as time, shape and quantity, how to provide opportunities to organize and group materials; and to verbalize their experiences. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HSER 1267 2 Cr.

Special Needs in Children

Introduces the various diagnostic categories as used within the school system. Diagnostic categories include. Autism Spectrum Disorders; Developmental Cognitive Disability; Early Childhood Special Education; Emotional/Behavioral Disorders; Physical and Other Health Disabilities; Sensory Disorders (Hearing/Vision); Specific Learning Disability; Speech/Language Disorders; and Traumatic Brain Injury. Support services **including occupational therapy, physical therapy, counseling, and behavioral treatment will also be discussed.** Prerequisite. STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HSER 1268 2 Cr.

Children's Health, Nutrition, and Safety

Teaches how to promote good health, physical fitness and nutrition and to provide a safe environment for children. Topics include motor development, methods of teaching health and safety to children, recognizing symptoms of abuse, neglect, and common children's

illnesses. Prerequisite. STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HSER 1269 2 Cr.

Guidance: Managing the Physical and Social Environments

Teaches how to provide a secure, supportive environment for communicating both thoughts and feelings, and for fostering developmentally appropriate behavior. Emphasis is given to providing nurture, developing realistic expectations for children's behavior, setting limits and developing self-control.

HSER 2221 3 Cr.

American Sign Language III

Students will learn to communicate abstract concepts related to ASL. Emphasis in this course is placed on grammatical structure, sign selection and vocabulary, use of fingerspelling in conversation, and Deaf culture. ASL Levels One - Four are designed for students interested in becoming certified sign language interpreters. This course is offered on-line only.

HSER 2222 3 Cr.

American Sign Language IV

Students will continue to develop skills and strategies necessary for communicating ASL concepts. The course will focus on building students' sign vocabulary, sign fluency and receptive skills. ASL Levels One - Four are designed for students interested in becoming certified sign language interpreters. This course is offered on-line only.

HSER 2297 2-8 Cr.

Human Services Generalist Internship

Provides supervised work experience for students in the generalist track in one or more human services agencies. Students and supervisors design the experiences to meet students' educational and career goals. Internships are available only to second-year students (completed at least 30 credits) who have an overall GPA of 2.00 ("C"), a 2.50 in career courses, and be approved following an interview with Human Services Coordinator.

HSER 2298 2 – 8 Cr.

Human Services Child Development Internship

Provides supervised work experience with children in settings such as day care, preschool, and elementary schools. Students and supervisors design the experiences to meet students' educational and career goals. Prerequisites: Internships are available to only to second-year students (completed at least 30 credits) who have an overall GPA of 2.00 ("C"), a 2.50 in career courses, and be approved following an interview with Human Services Coordinator.

HUMANITIES (HUM)

HUM 2121 4 Cr.

The Turbulent Sixties

Presents an interdisciplinary (history, literature, film) and topical survey of the 1960's. Topics will include the civil rights movement, war on poverty, Vietnam, feminism, the environmental movement and the counterculture. The course also counts as a Human

Diversity course. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HUM 2201 2 Cr.

The Many Faces of Mexico

The Many Faces of Mexico/Many Faces of Minnesota is an interdisciplinary course that explores the cultural, historical and social realities which together form contemporary Mexico. By studying about the economic and political situation, we can understand why many Mexicans are seeking work and moving their families north. Special attention is given to the impact on Minnesota communities and the challenge to welcome and to meet the needs of the growing Latino population.

HUM 2235 1-3 Cr.

Special Topics in Humanities

Special topics in humanities covers a wide range of humanities topics. Topics will be chosen to meet the needs of Human Services students. This class may be retaken for credit if the topic varies. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college.

HEATING VENTILATION AND AIR CONDITIONING (HVAC)

HVAC 1100 3 Cr.

Refrigeration Fundamentals

This course covers the basics of what heat is and how it can be moved from one place to another. Topics included are sensible heat, latent heat, super heat, and BTU's. Other topics included are EPA laws and regulations that pertain to the refrigeration certificate.

HVAC 1105 3 Cr.

Washers and Dryers

This course is an introduction of the basic types of washers, dryers, and their controls. Topics included are installation, breakdown, and troubleshooting, mechanical, and electrical systems.

HVAC 1110 3 Cr.

Refrigeration Controls and Components

This course covers the components common to all refrigeration systems and different types of controls that are used in today's commercial refrigeration.

HVAC 1115 2 Cr.

Dishwashers/Disposals and Compactors

Introduces the basic types of dishwashers, pumps, disposers, compactors and their controls. Topics include installation, breakdown, and troubleshooting.

HVAC 1120 3 Cr.

Domestic Refrigeration

Covered are new and late model refrigerators and freezers. Topics include installation, electrical, and mechanical troubleshooting.

HVAC 1125 3 Cr.

Ranges and Ovens/Microwaves

Introduces the basic concepts of microwave energy and basic types of ranges, ovens, and their controls. Topics included proper cooking procedures, installation, and both electrical and mechanical troubleshooting.

HVAC 1130 3 Cr.

Air Conditioning

This course covers the basic concepts of conditioning air. Topics include installation, testing air conditions, electrical, and mechanical troubleshooting.

HVAC 1135 4 Cr.

Commercial Refrigeration

This course covers the different types of systems, their controls and uses. Topics include installation, proper sizing, and troubleshooting techniques.

HVAC 1140 3 Cr.

Heating Fundamentals/Hydronics/Heat Pumps

The theory of heat in relation to gas, electric, and heat pump technology. Topics include controls, sizing, types of heat, venting, and requirements how it can be distributed.

HVAC 1145 2 Cr.

Basic Electronics

This course covers industrial electronic components and circuits explained in a straight forward and practical manner, as opposed to the traditional mathematical explanations used in more comprehensive courses. Content includes diodes, transistors, rectifiers, filters, SCRs, triacs, diacs, power supplies, and photo devices. Prerequisite: ELCO 1100.

HVAC 1150 3 Cr.

Heating Systems

This course will involve the student with various heating appliances and the proper method to install, test, check, troubleshoot, repair and size heating equipment. The student will become familiar with applications involving boilers, forced air, radiant, electric and gas.

HVAC 1155 3 Cr.

Sheetmetal Technology

The focus of this course will give the student proper and safe installations. The course will require the student to size, design, build, and install air duct. The course will require the student to troubleshoot problems of air and correct them. The ventilation requirements will be calculated into the system.

HVAC 1160 2 Cr.

Blueprint Reading for HVAC

Explains the design and construction standards for both commercial and residential plans, symbols, and specifications for the HVAC Trades.

HVAC 2100 2 Cr.

Special Problems

An open lab that provides students a chance to work on equipment and projects. Prerequisites: HVAC course that covers the type of equipment that students work on or instructor's approval.

HVAC 2105 **Special Problems** **2 Cr.**
An open lab that provides students a chance to work on equipment and projects. Prerequisites: HVAC course that covers the type of equipment that students work on or instructors approval.

HVAC 2110 **Special Problems** **2 Cr.**
An open lab that provides students a chance to work on equipment and projects.

LAW ENFORCEMENT (LAWE)

LAWE 1100 **Law Enforcement Orient/Practicum** **1 Cr.**
This course consists of classroom and field experience in an early arrangement to expose students to the realities of Law Enforcement. Students will have experiential exposure necessary to make long range academic and career plans.

LAWE 1101 **Introduction to Criminal Justice** **3 Cr.**
The course will provide a broad survey of the institutions and process of the criminal justice system. Major topics of the course will include the history and philosophy of criminal justice, police operations, the courts and corrections.

LAWE 1110 **Criminal Law** **3 Cr.**
An introduction to law including history and the development of criminal law procedures. Major topics include the content and meaning of the Fourth, Fifth and Sixth Amendment.

LAWE 1140 **Cyber Crimes** **2 Cr.**
An introductory course in the field of cyber crimes. Students will learn what different types of cyber crimes are committed including but not limited to identity theft, financial fraud, and the exploitation of children. They will learn how to go about taking computers as evidence, how to utilize search warrants to aid in an investigation, and what is needed to bring a cyber crime through the criminal justice system.

LAWE 1150 **Homeland Security and Terrorism** **2 Cr.**
Detailed study of terrorism, counterterrorism, terrorist personalities, and terrorist groups, including types, tactics, and trends on a worldwide scale as well as domestically. This course also examines the issues of prevention, civil liberties and the role and responsibilities of entry level police officers.

LAWE 1160 **Minnesota Criminal Code** **2 Cr.**
An overview of the Minnesota Criminal Code. The course is designed to teach the student how to identify and recognize the necessary elements of a criminal code violation necessary to make an arrest and obtain a conviction.

LAWE 1170 **Minnesota Traffic Code** **2 Cr.**
This course covers all of the 169 Minnesota Traffic Statutes. It includes the application, interpretation, and enforcement of motor vehicle operation, registration, insurance and safety responsibility acts, driver's license laws, rules and regulations.

LAWE 2201 **Criminal Investigation/Interview, and Interrogation** **3 Cr.**
An introductory course in the basic fundamentals of crime scene and post-crime investigation. Students will analyze methods of handling the crime scene, use of detection and identification purposes, and preparation of the case for prosecution. The second portion of this course will examine interview and interrogation techniques utilized by law enforcement. It will examine in-depth basic interviews of witnesses, victims, suspects, and children. Students will also demonstrate an understanding of the differences of interviewing and interrogations and will perform mock interrogations to demonstrate their understanding of the interrogation process.

LAWE 2210 **Evidence Collection and Preservation** **2 Cr.**
This course will familiarize students with the basic principles of the collection, examination, evaluation and interpretation of evidence. This course will focus on the application of modern science to physical evidence collection, preservation, and analysis.

LAWE 2215 **Basic Criminal Forensics** **3 Cr.**
This course will familiarize students with the basic principles and uses of forensic science in the context of the criminal justice systems. Forensic science which, is the study and application of science to legal processes, will be related to the collection, examination, evaluation and interpretation of evidence. This course will focus on the application of modern science to physical evidence collection, preservation, and analysis, which, if properly utilized, can be crucial in the resolution of social and legal disputes.

LAWE 2223 **Applied Writing: Law Enforcement** **2 Cr.**
This course will teach students the proper construction and preparation of police reports using Minnesota P.O.S.T. style.

LAWE 2232 **Patrol Operations** **3 Cr.**
Provides the learner with an in-depth review of the basic patrol functions for a police patrol officer. Topics include, but are not limited to, role and duties of a patrol officer, squad car familiarization, principles of traffic enforcement, officer safety issues, radio communications, calls for service, police ethics, and citizen contact and public relations.

LAWE 2251 3 Cr.
Psychology of Law Enforcement
 This course will cover the sources of interpersonal and intrapersonal stress in the law enforcement profession including victim crisis management strategies including dealing with and assessing people with mental illnesses. Students will be required to assess their vulnerability to these stressors and develop their own strategies and tactics for coping.

LAWE 2290 1 Cr.
Civil Service Preparation
 This course is designed to help students prepare for civil service exams and to develop and refine the skills necessary to successfully interview and communicate effectively in a professional law enforcement environment. The focus will be on law enforcement civil service testing, video based scenario testing, and pre-employment preparedness.

LAWE 2294 1 Cr.
Community Leadership
 Discusses community involvement in Law Enforcement and Crime Prevention.

LAWE 2295 1 Cr.
POST Seminar
 This course is a program overview, with opportunities to discuss changes in the field and POST requirements.

LAWE 2296 12 Cr.
Practicum
 Skills course for Law Enforcement to be offered by Hibbing Community College. Classes included in skills are: Patrol Practicals, Firearms, Traffic Enforcement, Defensive Tactics and Crime Scene Processing.

LAMB & WOOL MANAGEMENT (LWMP)

LWMP 1001 1 Cr.
Introduction To Sheep Management
 This course introduces basic sheep management principles. Students will study the year around management and production cycle for a sheep enterprise and understand how each production stage influences enterprise profitability. It also studies the philosophy of sheep management and its relationship to business goals.

LWMP 1002 2 Cr.
Sheep Management Concepts
 An in-depth look at strategic management and planning in a sheep enterprise. Students will study the trends in U.S. and Global Sheep Production; Resource Management; Strategic Planning and Development of a Management System. Students will also study financial measuring and monitoring methods. The course will also help students become familiar with how to prepare and work with an ag lender.

LWMP 1003 1 Cr.
Pasture and Grazing Management
 In this course students will study the principals of grazing management and pasture improvement. Included will be a study of optimum grazing methods;

intensive grazing systems; integrated crop-sheep production and improving pastures for increased production.

LWMP 1004 2 Cr.
Predator Control Methods
 This course is an overview of predator control methods and options. Students will become familiar with identifying predator problems; how they can be prevented and methods to control predator losses.

LWMP 1101 2 Cr.
Sheep Genetic Concepts
 This course is a study of basic genetic concepts; genetic improvement principles; breeds of sheep and inherited traits or defects. Students will also become familiar with developing mating systems and crossbreeding systems to maximize the benefits of genetic principles.

LWMP 1102 1 Cr.
Selection Methods
 This course will study selection methods and concepts to improve flock productivity. Students will also become familiar with tools for genetic improvement and selection programs for economically important traits.

LWMP 1201 1 Cr.
Sheep Behavior and Handling Methods
 This course will help students become familiar with sheep behavior and how to use these behavior tendencies to more easily work with sheep. The course will also study sheep handling system concepts; construction; layout and proper site selection.

LWMP 1202 2 Cr.
Equipment and Facilities
 This course will cover planning for sheep facilities; barn design; lot layout and sheep feeding equipment. Students will become aware of housing and feeding requirements and how to effectively plan for them.

LWMP 1300 2 Cr.
Intro to Sheep Health
 Sheep health is fundamental to a successful sheep enterprise and this course helps students become familiar with management practices beneficial to healthy animal production. Sheep health will be studied in the following categories - Animal Behavior, Handling, Housing and Nutrition; Quality Assurance and Bio-Security; Young Lamb Health Concerns; Metabolic Disorders; Abortion Management; Lameness Issues; Fertility Concerns in Rams; Sheep Eye Health Concerns; and Other General Health Issues.

LWMP 1301 3 Cr.
Sheep Diseases
 This course helps students become familiar with sheep diseases that need to be managed in a successful sheep enterprise. Diseases will be studied in the following categories - Lambs from birth to three weeks old; three weeks to weaning; weaning to maturity; ewes; rams and general diseases. External and internal parasites will also be addressed.

LWMP 1302 Preventative Health Programs This course will study basic disease control methods and flock health guidelines. Class participants will learn how to establish an economical year around flock preventative health program.	1 Cr.	patterns and to increase prolificacy. Also several reproductive management systems will be studied.
LWMP 1304 Basic Lamb Care Skills This course will help students become familiar with the skills necessary to treat, vaccinate and save newborn lambs.	1 Cr.	LWMP 1701 Wool Characteristics and Properties This course will provide an in-depth look at the biological development of wool fiber and the properties that make it a unique clothing fiber. In addition this course will study the factors that determine the value of wool, how these can be improved and methods to measure these qualities.
LWMP 1305 Basic Sheep Care Skills This course will provide students with the skills necessary to carry out the various care practices in mature sheep. Including vaccination methods, foot trimming, handling difficult births, injection sites, fixing prolapses and other management skills.	1 Cr.	LWMP 1702 Wool Harvesting, Marketing and Processing This course will study proper harvesting methods; sources of wool contamination; marketing methods and an overview of the wool processing methods.
LWMP 1401 Lamb Marketing This course is designed to make students aware of methods of lamb marketing and the factors that influence lamb prices. The course will cover the U.S. sheep industry, marketing systems, marketing alternatives and issues influencing the market value of lamb.	2 Cr.	LWMP 2001 Weaning and Weaning Methods This course covers the management of ewes and lambs at weaning time. The course will look at the time, reasons, preparation and methods of weaning lambs.
LWMP 1402 Sheep Quality Assurance This course will study the factors that affect the quality of the lamb and wool products we produce. Included are feed management, flock health, handling and transporting. Emphasis will be placed on producing high quality, consumer safe products.	1 Cr.	LWMP 2002 Artificial Rearing Lambs This course covers the various methods to successfully raise extra lambs that the ewes are not able to raise. Content will cover grafting lambs, rearing on milk replacer and other keys to success in raising the extra lambs.
LWMP 1501 Nutrition Requirements of Sheep This course will emphasize nutrient requirements of sheep and nutritional management of all class of sheep. The students will also study the digestive physiology of sheep.	2 Cr.	LWMP 2003 Lambing Time Management This course covers the basic principles of lambing time management and the skills necessary to properly care for newborn lambs and ewes. Significant emphasis will be placed on updating the students on the latest lambing technologies.
LWMP 1502 Ewe Ration Formulation This course will make students aware of the methods used to balance rations to meet the sheep nutrient needs for each specific stage of production. The course will also cover least cost ration balancing.	1 Cr.	LWMP 2004 Pre-Lambing Management This course covers the key management concerns the last month of gestation and how to manage them to have a positive impact on lambing success. A significant portion of this course will cover new technology updates.
LWMP 1601 Sheep Reproduction This course will help students understand the sheep reproductive system including the function of the reproductive system; the reproductive cycle; factors affecting reproduction and reproductive problems. These topics will address both the ram and the ewe.	2 Cr.	LWMP 2005 Low Labor Concepts This course is designed to study ways and methods to reduce labor input in a sheep enterprise. Included will be production, feeding and lambing systems to reduce labor.
LWMP 1602 Reproductive Management This course will look at ways that the reproductive cycle can be manipulated to overcome seasonal fertility	1 Cr.	LWMP 2006 Transporting Sheep This course studies the methods and procedures used in transporting sheep from one location to another. These methods, procedures and care will help to reduce physical and financial loss occurring from transportation.

LWMP 2007 Managing the Lamb Finishing Operation This course covers a systematic approach to management of a lamb finishing operation. It includes practices that will help insure a successful sheep enterprise.	1 Cr.	selection programs for sheep. Exact subject matter will vary depending on student need.
LWMP 2009 Basic Lambing Time Management This course will study the basic principles of lambing time management and care of newborn lambs and ewes.	1 Cr.	
LWMP 2010 Sheep Management Technology Update This course will explore the latest in sheep management technology and is designed to annually update students on the latest technologies and their application to a sheep enterprise.	1 Cr.	
LWMP 2012 Breeding Management Strategies This course studies the development of a systematic approach to management of the flock during breeding and early gestation. It includes defining the management strategies that will increase lambing percentages marketed.	2 Cr.	
LWMP 2051 Special Topics: Management This course enables study and application of concepts for planning and improving the overall management of the sheep enterprise. Exact subject matter will vary depending on student need.	1 Cr.	
LWMP 2055 Lambing Time Management Update This course will focus on providing students with information on new technology, management practices and health concerns affecting lambing time.	0.50 Cr.	
LWMP 2056 Sheep Management Update This course provides students with the latest management practices and new technology available to effectively manage their sheep enterprise.	0.50 Cr.	
LWMP 2101 Developing a Genetic Improvement Plan This course describes the fundamental concepts of sheep genetics that are helpful in planning an effective selection and breeding program.	2 Cr.	
LWMP 2102 Sheep Production Records This course covers records needed to maintain a production history of a flock. Including records related to feeding, health care, lamb and wool production and losses incurred at various stages of sheep production cycle.	1 Cr.	
LWMP 2152 Special Topics: Genetics This course enables study and application of planning, implementing and monitoring genetic improvement and	2 Cr.	
		LWMP 2201 Development of Sheep Feeding Systems This course studies alternative sheep feeding systems and considerations in developing these systems. These considerations include labor requirements, equipment requirements and cost. Feed processing and storage methods that can be integrated into these systems are also presented.
		LWMP 2252 Facilities and Equipment This course enables study and application of concepts for designing and constructing sheep facilities and equipment.
		LWMP 2301 Proper Pharmaceutical Use This course will cover properly using pharmaceutical products to maintain animal well being and a safe food product for consumers.
		LWMP 2302 Integrating a Health Program into the Management System This course covers the concepts to integrate various sheep health practices into a comprehensive health program that is coordinated with the overall flock management system. Students will study methods of determining levels of prevention needed and record keeping systems to determine the effectiveness of the health program.
		LWMP 2352 Special Topics: Health This course enables study and application of concepts for evaluation, planning, implementing and performing components of a comprehensive health management system. Exact subject matter will vary depending on student need.
		LWMP 2401 Developing Marketing and Production Alliances This course will provide students the opportunity to study the reasons and purposes of forming an alliance with processors and other producers in the sheep industry. The course will emphasize the planning and development of an alliance.
		LWMP 2501 Creep Feeding Lambs This course will study the reasons and methods of creep feeding lambs. It will also study creep feed ration considerations.
		LWMP 2551 Special Topics: Nutrition This course enables study and application of concepts for planning, implementing, and monitoring sheep nutrition and feeding programs as components of a comprehensive management system. Exact subject matter will vary depending on student need.

LWMP 2601 Artificial Insemination This course describes the use of artificial insemination techniques as a means of replacing natural mating systems. Procedures, benefits and costs of artificial insemination techniques will be covered.	1 Cr.	LWMP 2903 Pasture Development This course describes methods for converting land into pasture land. It includes evaluation of the suitability of the land for pasture, various tillage, planting and maintenance methods.	1 Cr.
LWMP 2651 Special Topics: Reproduction This course enables study and application of concepts for planning and improving the reproductive practices and breeding program for a sheep enterprise. Exact subject matter will vary depending on students needs.	1 Cr.	LWMP 2904 Sheep Herding Dogs This course covers the techniques used to train and use a herding dog effectively with the farm flock. It includes recognition of typical skills and jobs herding dogs are expected to perform, methods of helping the dog to improve these skills through correction and reward practices and care practices for maintaining an effective herding dog.	1 Cr.
LWMP 2801 Raising versus Buying Replacement Ewes This course will study the genetic, management and economic advantages and disadvantages for buying replacement ewes or raising your own replacement ewes.	1 Cr.	LWMP 2952 Special Topics-Business Records and Planning This course will focus on refining sheep enterprise records and planning for students who have received a Lamb and Wool Management diploma.	2 Cr.
LWMP 2802 Financial Record Keeping Concepts This course covers financial record keeping practices and systems to more accurately and efficiently measure the financial performance of the sheep enterprise. It will include cash and enterprise accounting principles.	2 Cr.		
LWMP 2803 Enterprise Analysis and Planning This course is designed to enable the student to evaluate their enterprise through use of their production and financial analysis. The student will use this information to make strategic management decisions for the next planning year.	1 Cr.		
LWMP 2804 Sheep Enterprise Business Planning This course will enable students to develop a complete business plan for their sheep enterprise. Included will be development of a production plan, marketing plan, financial budget and resource needs planning.	1 Cr.		
LWMP 2805 Feeder Lamb Enterprise This course will take an in-depth look at the economics, management, marketing, nutrition and facilities involved with a feeder lamb enterprise.	1 Cr.		
LWMP 2901 Fitting and Showing Sheep This course will cover the basic concepts of getting sheep ready to show at various exhibitions. The course will study the reasons sheep are shown; preparing sheep to show and selecting sheep to show.	1 Cr.		
LWMP 2902 Starting in the Sheep Business This course will study the details involved as a producer first starts in the sheep business. Special emphasis will be placed on avoiding the pitfalls of starting up and setting your personal and business goals.	1 Cr.		
		MACHINE TOOL TECHNOLOGY (MACH)	
		MACH 1100 Machine Tool Theory I Covered are safety, precision tools that machinists use, cutting tools, speeds and feeds, and the set up and use of lathes, milling machines and surface grinders.	3 Cr.
		MACH 1105 Machine Tool Lab I Instruction and hands on use of engine lathes, vertical mills, drill press, surface grinders and bench work. Students learn to set up and operate machine tools by doing projects that are useful to a machinist.	4 Cr.
		MACH 1106 Machine Tool Lab I (part 2) This is a continuation of MACH1105	3 Cr.
		MACH 1110 Blueprint Reading & Sketching Blueprint reading using a step by step process to enable each student to visualize industrial drawings. Freehand sketching provides a functional, practical method of representing mechanisms.	2 Cr.
		MACH 1115 Machine Tool Lab II Students will do advanced work on lathes, mills, surface, grinding, cylindrical and centerless grinding, heat-treatment for steels and quality control. Emphasis is put on quality and time in the making of useful projects that a machinist uses.	3 Cr.
		MACH 1120 Blueprint Reading and GDT A step by step process for the interpretation of metric and industrial blueprints. Geometric dimensioning and tolerancing covers terminology and symbols required to read blueprints used in industry today.	2 Cr.

MACH 1125 Machine Tool Theory II Students continue their class room study on safety, sawing, grinding, metallurgy, physics of metal cutting coordinate measurement systems and quality control, and machining processes and set-ups.	2 Cr.	Tooling and CNC Lab IV This course covers mold or die construction. CNC and EDM projects are also programmed and setup.	
MACH 1135 CNC Programming and Operation Introduces basic CNC programming and operation of CNC milling machines. Teaches the process for understanding absolute and incremental programming. Learning AG@ codes, and making several programs and running them on a CNC milling machine.	2 Cr.	MACH 2145 Electrical Discharge Machining This course will cover both ram type and wire EDM machines. Items covered include terminology, principles of operation, flushing, electrode manufacture, and machine operations.	2 Cr.
MACH 2100 Advanced CNC Mill Programming This course covers the programming of CNC milling machines and machining centers. Students use G-code and conversational programming for a variety of milling projects.	2 Cr.	MACH 1116 Machine Tool Lab II (part 2) This is a continuation of MACH1115.	3 Cr.
MACH 2105 Computer Aided Manufacturing This course covers the use of Mastercam software. Projects will be designed and toolpaths verified. Programs will them be post processed and sent to milling machines.	2 Cr.	MACH 1130 CAD Typical applications of CAD and AUTOCAD are presented with basic and design concepts. The topics are covered in easy to understand sequence. Shop drawings are made for use in the machine tool lab.	1 Cr.
MACH 2110 Tooling and CNC Lab I This course covers precision machining on lathes, mills, surface grinders, and inspection. The course also includes CNC milling and EDM work.	4 Cr.	MACH 1200 Statistical Process Control This course covers the construction and utilization of the primary Statistical Process Control (SPC) tools used in identifying process problems, improvement opportunities, and potential corrective actions.	1 Cr.
MACH 2115 Lathe CNC Programming This course covers programming of 2-axis CNC lathes. It also includes choosing of tooling and sequence of operations. Manual G-code programming and Master Cam programming will be done.	2 Cr.	MACH 2185 Machine Tool Night Lab Students continue on with lathing, milling, and surface grinding.	2 Cr.
MACH 2120 Moldmaking This course covers plastic, die cast, and rubber mold design and construction.	3 Cr.	MACH 2180 Machine Tool Night Lab Designed for basic instruction on engine lathes, vertical mills, drill presses, surface grinders, and benchwork. Students learn to set up and operate these machines doing basic projects.	2 Cr.
MACH 2125 Tooling and CNC Lab II This course covers precision inspection, CNC operation, EDM operation and mold design.	3 Cr.	MACH 2155 CNC Basics This course will cover programming, setup, and operation of basic CNC machine tools. Time will be spent learning different types of programming. Time will be spent in the classroom calculating RPM and feed rates for different types of cutting tools on a variety of material. Classroom time will include discussions of safety, blueprint reading, and covering other topic needed to complete CNC project(s).	1 Cr.
MACH 2130 Diemaking This course covers the basic principles of diemaking. This course also includes the study of blanking, piercing, bending, compound and progressive dies.	2 Cr.	MACH 2150 Machine Tool Basics Covered is the setup and operation of basic machine tools including Lathes, Vertical milling machines and drill press. Time will be spent learning to use measuring tools such as micrometers, calipers and other measuring tools	2 Cr.
MACH 2135 Tooling and CNC Lab III This course covers mold or die design and construction. It also includes special CNC and EDM projects.	4 Cr.		
MACH 2140	4 Cr.		

MATH (MATH)**MATH 0092** 2 Cr.**Essentials of Mathematics-Pre Algebra**

Assists students in developing a thorough understanding of basic mathematics. Intuition and sound mathematical techniques are used to analyze and solve problems in fractions, decimals, ratios, proportions, and percentages. This course is not considered a transfer course.

MATH 0098 3 Cr.**Higher Algebra I - Beginning Algebra**

Teaches basic algebraic concepts and skills. Real number properties, algebraic expressions, use of exponents, first degree equations, inequalities, operations on polynomials, factoring, roots and radicals, and quadratic equations and inequalities are emphasized in the course. This course is not considered a transfer course. Prerequisite: MATH 0092 or placement by exam.

MATH 0099 3 Cr.**Higher Algebra II**

Continues MATH 0098. Coordinate geometry, functions, systems of equations, matrices, determinants, exponential and logarithmic functions are emphasized in the course. Other topics may include sequences, series, binomial theorem, and/or probability and statistics introduction. This course is not considered a transfer course. Prerequisite: High school algebra (one year), MATH 0098, or placement by exam.

MATH 1100 3 Cr.**Integrated Math**

This course will focus on using math concepts to solve applied problems in technology. These concepts include topics in algebra, geometry, and trigonometry. Prerequisite: MATH0098 or placement by exam.

MATH 1105 4 Cr.**Introduction to Probability and Statistics**

Introduces the measures of central tendency, measures of dispersion, frequency distributions, probability, sampling distributions and the central limit theorem, testing of hypotheses, and some correlation analysis. Prerequisite: Two years of high school algebra, MATH 0099, or placement by exam.

MATH 1107 3 Cr.**Concepts in Math**

Covers topics from various areas of mathematics showing the scope and power of mathematics and emphasizing the mathematical method. For students who are not mathematics majors and who wish to acquire a basic understanding of mathematics. Prerequisite: Two years of high school algebra, MATH 0099, or placement by exam.

MATH 1111 3 Cr.**College Algebra**

Reviews the fundamental operations of higher algebra integrated with a functions approach. Studies polynomial, exponential, and logarithmic functions, graphs and transformations, systems of equalities and inequalities, matrices and determinants, and

applications to problem solving. Prerequisite: Two years of high school algebra, MATH 0099, or placement by exam.

MATH 1113 4 Cr.**Pre-Calculus**

Reviews the concepts functions of college algebra and then extends those ideas to trigonometry and analytic geometry. Exponential, logarithmic, and polynomial functions are emphasized in the review. The course explores rectangular coordinates and angles, solutions of right triangles, unit circles, radian measures, trigonometric functions and their inverse trigonometric graphs, trigonometric equations and identities, complex numbers, conic sections, and other analytic geometry topics such as polar coordinates, parametric equations, sums and geometric series, and vectors. Prerequisite: MATH 1111 or placement by exam.

MATH 1121 4 Cr.**Calculus I**

Introduces the basic ideas of differential and integral calculus: topics include limits and continuity, differentiation of functions, applications of derivatives, definite and indefinite integrals, the fundamental theorems of integral calculus, numerical integration, and applications of definite integrals. Prerequisite: Four years of high school mathematics, MATH 1113, or placement by exam.

MATH 1122 4 Cr.**Calculus II**

Continues Calculus I. Begins with further applications of the definite integral. Other topics include the calculus of transcendental functions, techniques of integration, infinite series, plane curves, polar coordinates, parametric equations, and a few topics of analytic geometry of Euclidean 3-space. Prerequisite: MATH 1121.

MATH 2201 4 Cr.**Calculus III**

Continues Calculus II. Topics include vectors, vector-valued functions with applications, functions of two or more variables, partial derivatives, multiple integrals, and vector analysis topics including line and surface integrals, Green's Theorem, and Stokes Theorem. Prerequisite: MATH 1122.

MATH 2205 5 Cr.**Linear Algebra and Differential Equations**

Intended for students majoring in engineering, physics, or mathematics. This is the first basic course in ordinary differential equations and combines topics in linear algebra. These topics include matrix formulation of linear systems, determinants, linear equations with variation of parameters and undetermined coefficients, Laplace Transforms, homogeneous and nonhomogeneous systems of equations, vector spaces, linear independence and bases, linear transformations, eigenvalues and eigenvectors, and power series solutions. Prerequisite(s): MATH 1122 with MATH 2201 recommended.

MATH 2235 1-4 Cr.
Special Topics Mathematics
Explores specific areas of mathematics to meet specialized student needs or interests. This class may be retaken for credit if the topic varies.

MASS COMMUNICATIONS (MCOM)
MCOM 1101 2 Cr.
Introduction to Journalism
Teaches basic journalism skills. Topics include writing leads, news stories, feature stories, news gathering and writing skills. Students will contribute stories to the Bluejay Flyer campus newspaper.

MEDICAL LABORATORY TECHNICIAN (MDLT)
MDLT 1100 3 Cr.
Introduction to Laboratory Science
An orientation course designed to familiarize students with a career in the medical laboratory field, MLT education programs, medical terminology, certification process, professional organizations, and ethical/legal issues. The student will also obtain blood samples (phlebotomy) and will operate EKG equipment.

MDLT 1105 3 Cr.
Microbiology I
This course introduces the student to the microbial world. The course covers the study of the materials and methods used for identification of pathogenic organisms and the study of these organisms in relation to their disease processes in humans. The course will present microbiology within an epidemiologic, diagnostic, and clinical framework.

MDLT 1110 1 Cr.
Medical Lab Calculations
Prepares the MLT students for calculations used in the medical laboratory. Class content includes dilutions, titers, Levey-Jenny charts and quality control, metric system, and calculations used in the disciplinary departments in the medical laboratory. Instrumentation will be discussed.

MDLT 1115 2 Cr.
Biological Fluids
This course introduces the student to the practical aspects of renal physiology and the theory of urine chemical, physical and microscopic tests. In addition, analysis of other body fluids (fecal specimens, cerebral spinal fluid seminal fluid, amniotic fluid, synovial fluid) is reviewed in the lecture portion of the class. In the laboratory the student will perform physical, chemical and microscopic analysis on urine specimens.

MDLT 1120 3 Cr.
Immunology
This course introduces the student to a wide array of clinical laboratory techniques that are based on the concepts studied in immunology. The topics range from the very simple to the very complex procedures that are used in all areas of the clinical laboratory.

MDLT 1125 3 Cr.
Clinical Chemistry I
Students are introduced to methods used in the quantitative analysis of chemical constituents of blood and other body fluids. Quality control is emphasized as integral to all aspects of laboratory medicine. Specific testing procedures for various organ systems are discussed and practiced.

MDLT 1130 3 Cr.
Hematology I
This course introduces the student to study of cells in the blood. It covers routine procedures performed on patients' blood in a medical laboratory. Emphasis is on the theory and practice of these skills utilizing both manual and automated techniques. Prerequisite: MDLT1100

MDLT 2101 3 Cr.
Microbiology II
This course is a continuation of MDLT1105 (Medical Microbiology I). Groups of medically important miscellaneous bacteria, yeast, molds, parasites and viruses are studied and correlated to laboratory practice in identification. Prerequisite: MDLT1105 or discretion of instructor.

MDLT 2106 3 Cr.
Immunoematology
This course teaches the theory of red cell antigen-antibody interaction as it relates to blood grouping and typing, antibody detection and compatibility testing. Blood donor screening and component preparation are also discussed. In the laboratory the student will perform basic blood banking procedures. Accuracy in procedure and interpretation is emphasized. Prerequisites: MDLT1100 and MDLT1120.

MDLT 2110 3 Cr.
Clinical Chemistry II
This course is a continuation of MDLT1125. Students continue to develop skills in the performance of the chemical analysis of blood. Lectures continue to correlate laboratory results with clinical findings. In addition, material will be presented on markers, minerals and toxicology.

MDLT 2120 3 Cr.
Hematology II
This course is a continuation of MDLT1115. Students will carry out wide ranging research into the disease processes that occur in the formed elements of the blood with emphasis on leukemias and myelomas. This course also covers the theory and testing of the coagulation aspects of the blood. The student will prepare a research paper and a journal article report.

MDLT 2125 12 Cr.
Externship I
This is the first part of the students externship in an affiliated hospital laboratory. The student is assigned to an affiliated hospital for the purpose of allowing them to gain practical experience in a laboratory while under direct supervision. The student will rotate through various departments of the laboratory. The student will review and

be tested on immunology, microbiology and chemistry. The student will be responsible for worksheets and exams.

MDLT 2131 **7 Cr.**
Externship II

This is the final part of the student's externship and courses in the medical laboratory technician program. The student will continue their externship at their assigned affiliated hospital laboratory. The student will rotate through the various departments. The student may experience weekend and night call to better prepare them for a realistic laboratory job. The student will receive worksheets and exams on microbiology, immunology and immunohematology. Prerequisite: MDLT2125

MDLT 2140 **2 Cr.**
Diagnostic Testing

Designed to present the origin and nature of X-rays, and how they are used to produce medical radiographic images. Basic positioning and set-up techniques will be demonstrated, and the student is eligible to take the Minnesota X-Ray Operator's Exam upon completion of this portion of the course. The student is also taught electrocardiography, which includes understanding cardiac anatomy and physiology, the components of the cardiac cycle, and basic heart rhythms. The student learns how to perform a 12-lead EKG while working in a simulated laboratory setting. Prerequisites: BIOL 1110 and BIOL 2245 or BIOL 2245 and HC 1151

MDLT 2200 **4 Cr.**
Externship

Phlebotomy Technician externship consists of 120 contact hours of supervised practice of phlebotomy at an affiliated hospital, private laboratory or clinic. Learning activities are specifically planned and implemented at the clinical affiliated site. Students clinical experience is standardized using a checklist. The student will make arrangements with the Medical Laboratory Technician Program Director regarding their externship time and site. Prerequisite: MDLT 1100.

MDLT 2235 **1-3 Cr.**
Special Topics

Covers a wide range of issues of current interest. Topics will be chosen to meet the needs of students. This class may be retaken for credit if the topic varies.

MEDICAL ASSISTING (MEDA)

MEDA 1105 **2 Cr.**
Clinical Procedures I

This course teaches the fundamentals of the patient care aspect of medical assisting, and includes learning to perform specific skills. Areas taught include communication and professionalism, basic principles of psychology, medical assistant's role in assisting with the medical exam and certain procedures, and documentation.

MEDA 1135 **2 Cr.**
Laboratory Skills

In this course the Medical Assistant Student will study the laboratory areas of urinalysis, immunology,

serology, hematology, clinical chemistry, microbiology, and body fluid analysis. Students will perform waived testing according to CLIA guidelines. Prerequisite: MDLT 1100

MEDA 2100 **1 Cr.**
Dosage Calculations

Prepares the student for dosage calculations and the administration of medications. An emphasis is placed on mastering math skills necessary for administration of medications. Class content includes measurement systems and conversions between systems, solving ratio and proportion problems, and working with percentages. The student is introduced to reading oral and parenteral dosages are performed.

MEDA 2110 **3 Cr.**
Clinical Procedures II

Teaches the continued study of the fundamentals of medical assisting in relation to surgical asepsis and sterile procedures, physical therapy, and medical emergencies. It also explores the primary care areas of family practice, internal medicine, OB/GYN and pediatrics. The student is taught to perform specific skills related to the above areas of study. Professionalism, communication and documentation continue to be stressed in this course. Developmental stages of the lifecycle and the effects of heredity, culture and environment on behavior are discussed. Prerequisite: MEDA 1105.

MEDA 2140 **7 Cr.**
Medical Assistant Externship

Focuses on the role of the medical assistant in relation to the following areas: self-awareness and self-care, community resources, patient education, teamwork and customer relations. The remainder of the course is designed to provide on-the-job experience. The student will be assigned to work in a physician's office for a total of 6 semester credits. The student will work under the supervision of office personnel doing tasks pertinent to the student's technical program.

MEDA 2150 **2 Cr.**
Pharmacology I

Introduces pharmacological concepts, drug classifications, and the effects of drugs on the client. Principles of safe, accurate administration of medications by various routes are emphasized. Classroom and lab are used to teach basic methods of safe drug administration.

MEDA 2160 **1 Cr.**
Pharmacology II

Builds on the pharmacological concepts, drug classifications, and the effects of drugs on clients.

MEDA 2235 **1-3 Cr.**
Special topics in Medical Assisting

Introduces students to specialized topics in the Medical Assisting field. topics cover a wide range of issues of current interest and will be chosen to meet the needs of students. This class may be retaken for credit if the topic varies.

MESSAGE THERAPY (MSTH)**MSTH 1100****3 Cr.****Introduction to Massage**

This course teaches the importance of self-awareness and self-care. Body mechanics are emphasized. Yoga, Tai Chi, somatic stretches and relaxation techniques are taught. Discussions of stress causing events are discussed. Self-knowledge and self-awareness both physically and mentally are taught. The aim is to facilitate the development of student maturity and self-understanding. Professional behavior and standards, ethical and legal practice as it applies are discussed. Introduction to massage therapy, licensure, national certification, professional organizations, malpractice insurance, and the hospice concept are also taught. Client positioning, and with the use of the bolsters, pillows, packs and cold packs or ice (cryotherapy) is covered. The ability to make professional judgments about the application of the appropriate modality for each client situation is taught and practiced.

MSTH 1105**2 Cr.****Kinesiology**

This course covers the basic structure and function of the joint, muscles, nerves, and other connective tissues that cause movement and control posture in the human body as they apply to massage therapy. General physics principles including levers, planes, and axis are covered. The interaction of the muscle/bone connections and the forces needed to produce movement are taught.

MSTH 1110**6 Cr.****Basic Massage I**

Massage techniques are applied sequentially to the back, neck, and head, posterior legs, anterior torso, face, and anterior legs. Pathology of each area is discussed including function, positioning, appropriate strokes, ethical situations, and the appropriate draping. Concurrently the students are gradually led to the application of professionalism, legal issues, and documentation as they apply to stress reduction massage. The relationship of the mind's control of muscles and the resulting posture are taught. Instruction in somatic releases for each body section is practiced. The importance of client education is stressed with the responsibility of the client of participate in their well-being. Postural analysis is taught. Students learn definitions, identification and therapeutic interventions of the three major muscular reflexes at stress in humans. Distinguishing chronic muscular pain and postural distortions as caused by structural imbalance vs. functional imbalances is explored.

MSTH 1115**6 Cr.****Massage Therapy**

The theory, techniques and applications of deep tissue therapy are taught including deep work on the muscles and fascia, methods of tension release, and the injury repair process. Causes of stress are discussed and their relationship to chronic tension as related to neuromuscular therapy (NMT), and stress-tension-pain cycle is taught. Expanded and more detailed interview and assessment techniques are reviewed. The dysfunction theory and formation of trigger points with review of muscle cell activity, joint mobilization and

stretching are taught. Students learn in-depth interview skills, working with pressure scales and the importance of client/therapist communication. Development of treatment plans is taught, and how and when to make a referral. This course also covers Swedish Massage, Chair Massage, mother Massage, Infant Massage, Geriatric (Senior) Massage, and Lymphatic Drainage Massage. The evaluation of special populations is taught. Special massage skills involving positioning, strokes, pathology, documentation, and contraindications and cautions are included.

MSTH 1120**3 Cr.****Client Massage**

This course covers the application of Swedish Massage, Chair Massage, Mother Massage, Infant Massage, Geriatric (Senior) Massage, and Lymphatic Drainage Massage. Special massage skills involving positioning, strokes, pathology, documentation, and contradiction and cautions are included.

MSTH 1125**3 Cr.****Massage Therapy Business Practices**

This course covers the principles of a massage therapy business. The small business successes and record keeping are taught. The differences between contract work, being an employee, and ownership are compared.

MUSIC (MUSC)**MUSC 1101****3 Cr.****Fundamentals of Music**

Covers basic music symbols, vocabulary, rhythm, scale structures, intervals, chords and basic piano skills. This is a required course for all elementary education majors. It is also open to any student who desires a basic introduction to music.

MUSC 1102**3 Cr.****MIDI Music**

Studies electronic music, using music computer program Finale, composing music from the major periods in music history and various American music styles. Prerequisites are: ability to read music, knowing the piano keyboard, and having basic computer knowledge.

MUSC 1104**3 Cr.****American Popular Music**

Studies American music including: Native American, African/American, vaudeville, Tin Pan Alley, ragtime, Dixieland, big band, musicals, country-western, folk music, popular song, jazz, rock, and the American Musical Theater.

MUSC 1105**3 Cr.****Enjoying Music**

Stresses the art of listening and enjoying music from major musical periods such as the Baroque and Classical as well as jazz. Open to all students who wish to increase their knowledge and enjoyment of music.

MUSC 1106 Jazz Band Prepares students for performance of jazz band and big band literature. Open to all students who play band instruments. Performances are given both on and off campus. Prerequisite: Audition.	1 Cr.	MUSC 1145 Vocal Lessons Develops singing technique through a regularly scheduled program of individualized instruction.	1 Cr.
MUSC 1108 Concert Band Prepares students for performance of concert band and wind ensemble literature. Open to all students who play band instruments. Performances are given both on and off campus. One major performance each semester. Prerequisite: Audition.	1 Cr.	MUSC 1146 Vocal Lessons Develops singing technique through a regularly scheduled program of individualized instruction.	1 Cr.
MUSC 1111 Chorale Consists of a mixed chorus practicing and performing a wide range of choral literature from Renaissance motets, small works for chorus and orchestra, to avant-garde compositions and pop music. Emphasis is on good vocal production. There is one major performance each semester and some touring. In case of low enrollment, this class may be divided into small ensembles such as octets, sextets, or quartets. Prerequisite: Audition.	1 Cr.	MUSC 2106 Jazz Band Prepares students for performance of jazz band and big band literature. Open to all students who play band instruments. Performances are given both on and off campus. One major performance each semester. Prerequisite: Audition.	1 Cr.
MUSC 1112 Chorale Consists of a mixed chorus practicing and performing a wide range of choral literature from Renaissance motets , small works for chorus and orchestra, to avant-garde compositions and pop music. Emphasis is on good vocal production. There is one major performance each semester and some touring. In case of low enrollment, this class may be divided into small ensembles such as octets, sextets, or quartets. Prerequisite: Audition.	1 Cr.	MUSC 2108 Concert Band Prepares students for performance of concert band and wind ensemble literature. Open to all students who play band instruments. Performances are given both on and off campus. One major performance each semester. Prerequisite: Audition.	1 Cr.
MUSC 1131 Pop Singers Consists of a mixed vocal ensemble, with accompaniment, performing a wide variety of popular music. At least one major performance and some touring takes place each semester. In case of low enrollment, this class may be divided into small ensembles such as octets, sextets, or quartets. Prerequisite: Audition.	1 Cr.	MUSC 2111 Chorale Consists of a mixed chorus practicing and performing a wide range of choral literature from Renaissance motets, small works for chorus and orchestra, to avant-garde compositions and pop music. Emphasis is on good vocal production. There is one major performance each semester and some touring. In case of low enrollment, this class may be divided into small ensembles such as octets, sextets, or quartets. Prerequisite: Audition.	1 Cr.
MUSC 1132 Pop Singers Consists of a mixed vocal ensemble with accompaniment performing a wide variety of popular music. At least one major performance and some touring takes place each semester. In case of low enrollment, this class may be divided into small ensembles such as octets, sextets, or quartets. Prerequisite: Audition.	1 Cr.	MUSC 2112 Chorale Consists of a mixed chorus practicing and performing a wide range of choral literature from Renaissance motets, small works for chorus and orchestra, to avant-garde compositions and pop music. Emphasis is on good vocal production. There is one major performance each semester and some touring. In case of low enrollment, this class may be divided into small ensembles such as octets, sextets, or quartets. Prerequisite: Audition.	1 Cr.
MUSC 1140 Piano Lessons Provides regularly scheduled individualized instruction. Open to interested students at all levels of ability.	1 Cr.	MUSC 2131 Pop Singers Consists of a mixed vocal ensemble, with accompaniment, performing a wide variety of popular music. At least one major performance and some touring takes place each semester. In case of low enrollment, this class may be divided into small ensembles such as octets, sextets, or quartets. Prerequisite: Audition.	1 Cr.
MUSC 1141 Piano Lessons Provides regularly scheduled individualized instruction. Open to interested students at all levels of ability.	1 Cr.	MUSC 2132 Pop Singers Consists of a mixed vocal ensemble, with accompaniment, performing a wide variety of popular music. At least one major performance and some	1 Cr.

touring takes place each semester. In case of low enrollment, this class may be divided into small ensembles such as octets, sextets, or quartets. Prerequisite: Audition.

MUSC 2140 1 Cr.
Piano Lessons
 Provides regularly scheduled individualized instruction. Open to interested students at all levels of ability.

MUSC 2141 1 Cr.
Piano Lessons
 Provides regularly scheduled individualized instruction. Open to interested students at all levels of ability.

MUSC 2145 1 Cr.
Vocal Lessons
 Develops singing technique through a regularly scheduled program of individualized instruction.

MUSC 2146 1 Cr.
Vocal Lessons
 Develops singing technique through a regularly scheduled program of individualized instruction.

MUSC 2235 1-3 Cr.
Special Topics in Music
 Covers a wide range of issues of current interest. Topics will be chosen to meet the needs of students. This class may be retaken for credit if the topic varies.

MUSC 2250 3 Cr.
Theory of Music
 Studies the rudiments of music; writing, analysis and performance as applied to the study of melody and harmony, sightsinging, and eartraining. Sequenced course designed for music majors, minors and all students who desire an in-depth study of music. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

MUSC 2260 3 Cr.
Theory of Music
 Studies the rudiments of music; writing, analysis and performance as applied to the study of melody and harmony, sightsinging, and eartraining. Sequenced course designed for music majors, minors and all students who desire an in-depth study of music. Prerequisite: MUSC 2250.

MANICURIST (NAIL)

NAIL 1101 4 Cr.
Nail Clinic/License Preparation
 This course prepares students for their written examinations and skill certification.

NAIL 1200 4 Cr.
Nail Technology
 Provides students with an opportunity to develop the practical skills necessary for entry-level salon work concentrating on manicuring, pedicuring, artificial nail application. This course will contribute 96 hours towards licensure. The Department of Commerce

mandates these hours to go toward the hour requirement. Prerequisites: successful completion have or concurrent enrollment in preclinical courses.

NATURAL SCIENCE (NSCI)

NSCI 1100 3 Cr.
Issues in the Environment
 Takes a broad look at environmental issues and explores in-depth certain global, national, and local environmental problems. In addition to lecture; guest speakers, field trips, and videos may be used. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

NSCI 2235 1-3 Cr.
Special Topics
 This course explores various topics relating to the natural and manmade world. It is designed to meet student needs or interests relating to their chosen field of study. The course may be retaken when the topic is different.

NURSING (NURS)

NURS 1100 3 Cr.
Principles and Practices of Nursing
 Introduces principles and practices utilized by the beginning nursing student to assist and empower individuals and families across the lifespan with basic needs. Concepts include critical thinking, cultural concepts, confidentiality, boundaries, nutrition, communication, nursing process and documentation, fluid and electrolytes, rest and sleep, psychological balance, pain and comfort, and elimination.

NURS 1120 3 Cr.
Nursing of the Adult I
 Introduces the students to alterations in functioning, including basic disease processes throughout the adult lifespan including disruptions in the following: cardiovascular, respiratory, skin and sensory systems. Topics of infectious processes, diabetes mellitus, and drug therapy will be addressed. Gerontological and cultural consideration will be included. Critical thinking through the use of the nursing process, health promotion, and standards of care are used to guide the students.

NURS 1130 2 Cr.
Pharmacology
 Introduces pharmacological concepts, drug classifications, and affects of drugs on the client. It prepares the student for dosage calculations and the administration of medications.

NURS 1140 2 Cr.
Nursing Skills Lab
 Focuses on achieving safe and competent practice in nursing skills such as catheterization, dressing changes, NG tube insertions, and medication administration skills.

<p>NURS 1180 2 Cr. Clinical Applications I Focuses on student demonstration of knowledge and skills learned in the classroom and lab by providing nursing care for selected clients in a long-term care facility.</p>	<p>promotion, pharmacology, and nutrition are integrated into specific subject areas. Subject areas include individuals with oxygenation needs, pain management, fluid and electrolyte balance, the childbearing and childrearing family.</p>
<p>NURS 1220 5 Cr. Nursing of the Adult II Introduces the students to alterations in functioning, including basic disease processes throughout the adult lifespan including disruptions in the following: renal, reproductive, gastrointestinal, endocrine, neurovascular and musculoskeletal systems. Topics of cancer and surgical client care and mental health will be addressed. Nursing and collaborative interventions and critical thinking skills are reinforced. Pharmacological concepts, gerontological and cultural considerations will be included. Critical thinking through the use of the nursing process, health promotion, and standards of care are used to guide the students.</p>	<p>NURS 2140 2 Cr. Professional Nursing Skills Focuses on mastery of independent and delegated nursing skills necessary for the beginning nurse generalist. An emphasis is placed on the refinement of physical and psychosocial assessment skills through the lifespan. Other threads include communication skills, caring interventions, teaching/learning, documentation, and the nurse's role in intravenous therapy.</p>
<p>NURS 1250 2 Cr. Nursing of the Childbearing/Childrearing Families Introduces the students to the childbearing/childrearing family. Concepts included are psychosocial, normal physical, and abnormal conditions of pregnancy, the health and illness of the newborn through the adolescent, and the influence of the community on the family. Application of growth and development theory to direct patient care is emphasized. Prerequisite: PSYC 1150</p>	<p>NURS 2180 2 Cr. Clinical Applications III Demonstrate critical thinking skills in planning and delivering care for individuals and families across the lifespan with a variety of health care needs. Provides the student the opportunity to demonstrate newly acquired cognitive and technical skills and to integrate previously learned skills and knowledge.</p>
<p>NURS 1280 6 Cr. Clinical Application II Focuses on student demonstration of knowledge and skills learned in the classroom and lab by providing nursing care to individuals and families across the lifespan. The student demonstrates critical thinking skills in planning and caring for selected clients in a variety of settings and working within an interdisciplinary team.</p>	<p>NURS 2220 4 Cr. Nursing Across the Lifespan II Focuses on health and illness for individuals and families across the lifespan. The student is expected to use a higher level of critical thinking during this course. Subject areas include caring for the client experiencing cancer, musculoskeletal, vascular/hematologic, endocrine, neurological, gastrointestinal, genitourinary, critically ill episodes, emergency situations, wound care and immune disorders.</p>
<p>NURS 1295 2 Cr. PN Integration Introduces the first year student to Nurse Practice act, legal and ethical issues and leadership skills in preparation for state licensure. Clinical facilitates the transition role from student to practitioner.</p>	<p>NURS 2230 1 Cr. Trends and Issues Introduces the student to contemporary nursing topics such as current trends, advocacy, impact of legislative decisions on health care, reimbursement, boundaries, models of care, complementary/alternative therapies, nursing informatics and access to care.</p>
<p>NURS 2100 2 Cr. Professional Nurse Transition Assists the student successfully transition into the second year. Topics may include, but are not limited to communication, critical thinking, nursing process, math, culture, and boundaries. May include clinical days as needed.</p>	<p>NURS 2240 2 Cr. Manager of Care Emphasizes beginning management theory and transition into the graduate nurse role. The learner integrates knowledge and skills necessary for caring for groups of clients, managing the care of long term clients, nursing team management, interdisciplinary collaboration, delegation, and supervising nursing personnel. Additional emphasis is placed on nursing referral and empowerment of individuals with chronic illness.</p>
<p>NURS 2120 4 Cr. Nursing Across the Lifespan Concentrates on health and illness of individuals and families across the lifespan. Critical thinking through the use of the nursing process and standards of care are used to guide the student. Concepts of health</p>	<p>NURS 2252 1 Cr. Caring within the Discipline of Nursing I Introduces the student to the professional nursing role and the practice of associate degree (AD) nursing. Threads in the curriculum including the nursing process, holism, culture, family, growth and development, and ethics are explored. Issues related</p>

to transition from practical nurse to registered nurse are addressed. Concurrent enrollment in NURS 2250 and 2251 required.

NURS 2270 4 Cr.

Caring Across the Lifespan Provider Care II

Continues NURS 2250. This course focuses on health and illness across the lifespan and provides nursing theory in caring for clients with increasingly complex needs. Subject areas include the childbearing family and caring for clients experiencing psychiatric, metabolic, endocrine, neurological, activity/rest and immune disorders. Taken concurrently with NURS 2271. Prerequisites: NURS 2250 and 2251. Concurrent enrollment in SPCH 1101 unless previously successfully completed.

NURS 2271 3 Cr.

Clinical Application: Provider of Care II

Provides an opportunity to synthesize theory and skills learned and practiced in NURS 2250, 2251 and 2270. A variety of clinical and seminar experiences including community, acute, and long term care settings are utilized. Six clinical lab hours, 3 independent lab hours. Taken concurrently with NURS 2270.

NURS 2272 1 Cr.

Caring Within the Discipline of Nursing II

Facilitates transition from student nurse to graduate nurse. The course explores legal and ethical issues along with the professional nurse's role in research and research utilization. There is a continued emphasis on transition issues for the LPN and ADN student socialization into professional nursing. Course content includes career planning, issues and trends in nursing, the scope of nursing practice and leadership skills necessary for the beginning generalist in a variety of settings. Concurrent enrollment in NURS 2270 and 2271 required.

NURS 2273 2 Cr.

Caring Across the Lifespan: Manager of Care

Emphasizes beginning management theory and transition into the graduate nurse role. The learner integrates knowledge and skills necessary for caring for groups of clients and supervising nursing personnel. Additional emphasis is placed on community assessment, referral resources, case finding, and discharge planning. Two clinical lab hours, 1 independent lab hour. Concurrent enrollment in NURS 2270 and 2271 required.

NURS 2275 1-2 Cr.

Nursing Preceptorship

Provides an opportunity for skill refinement and increased self-confidence in the role of Associate Degree Nurse through working with a preceptor. The learner applies the nursing process in a realistic work setting. Concepts of accountability and professionalism are integrated from prior learning.

NURS 2280 3 Cr.

Clinical Application IV

Demonstrates critical thinking skills and synthesis in planning and delivering care for increasingly complex

individuals and families across the lifespan. Newly acquired nursing skills and classroom knowledge will be utilized in a variety of venues that includes acute care and community settings.

PRNU 2295 1 Cr.

IV Skills for Practical Nurses

This course is designed to enhance the knowledge of established IV nursing standards of practice and to qualify the licensed practical nurse to initiate and administer IV therapy to adults and adolescents. Information and hands-on practice for the safe insertion, care and maintenance of a peripheral IV catheter will be provided. Administration of IV therapy via a peripheral site will also be discussed.

PHYSICAL EDUCATION (PHED)

PHED 1101 3 Cr.

Foundations of Health, Physical Education & Recreation

Provides an introduction to the history, philosophy, objectives, and principles of health, physical education and recreation. Topics included will be career opportunities and preparation; professionalism including attitudes; ethics, and organizations. This is a course designed for persons who plan to major or minor in health, physical education or recreation.

PHED 1106 2 Cr.

Psychology of Winning

Studies the basic principles of psychology related to success and motivation. Emphasizing positive-winning attitudes, success traits, goal-setting and basic psychology principles. This course is designed to help students recognize the strong relationship that exists between attitudes and success in school, work, sports and life.

PHED 1110 3 Cr.

Prevention and Care of Athletic Injuries I

Covers the modern principles of athletic training for people involved in the health care of athletes. This course is designed to help individuals involved in coaching, physical education, or recreation, as well as persons interested in athletic training or sports medicine.

PHED 1114 2 Cr.

Physical Agility & Self Defense

This course provides experiential learning in techniques for self-defense as well as general fitness learning. Techniques in handcuffing, searching, joint manipulation pressure points and counters. Only students formally accepted into the AS Law Enforcement Program may register.

PHED 1120 1 Cr.

Beginning Archery

Offers fundamental instruction in target archery. Safety, choice and care of equipment will also be taught.

<p>PHED 1125 1 Cr. Aerobics Teaches a moderately strenuous blend of flexibility, stretch and dance using the large muscle groups. Its aims are improving cardiovascular fitness, promoting a multitude of positive and natural changes in the body, enhancing general health and well being, toning up muscles and having fun.</p>	<p>PHED 1172 1 Cr. Intercollegiate Men's Basketball Provides credit for first year participants. The course consists of a twenty-game schedule against other community colleges in Minnesota.</p>
<p>PHED 1130 1 Cr. Physical Fitness for Life Emphasizes aspects of physical fitness for the student wishing to learn methods and tests of physical fitness. Cardiovascular and respiratory fitness, as well as muscular strength and endurance will be emphasized. The course is self-paced.</p>	<p>PHED 1173 1 Cr. Intercollegiate Women's Basketball Includes participation in intercollegiate competition in women's basketball at the community college level representing Minnesota West Community and Technical College, Worthington Campus in the Minnesota Community College Athletic Conference.</p>
<p>PHED 1135 1 Cr. Beginning Tennis Introduces the fundamentals of tennis as a leisure time activity. Emphasis is on acquiring technique, knowledge and fitness.</p>	<p>PHED 1174 1 Cr. Intercollegiate Wrestling Provides credit to first year students who report for the wrestling squad and who complete the requirements of the course. This includes participation in Minnesota Community College Athletic Conference competition.</p>
<p>PHED 1136 1 Cr. Racquet Sports Introduces the fundamentals of different racquet sports and leisure time activities. This course is designed to develop skills, technique, sportsmanship, and knowledge of rules in racquetball, badminton, and other indoor racquet sports.</p>	<p>PHED 1175 1 Cr. Intercollegiate Women's Softball Includes participation in intercollegiate competition in women's softball at the community college level representing Minnesota West Community and Technical College, Worthington Campus in the Minnesota Community College Athletic Conference.</p>
<p>PHED 1140 2 Cr. Body Conditioning Emphasizes body conditioning through weight training and physical training.</p>	<p>PHED 1176 1 Cr. Intercollegiate Baseball Includes participation in intercollegiate competition in men's baseball at the community college level representing Minnesota West Community and Technical College, Worthington Campus in the Minnesota Community College Athletic Conference.</p>
<p>PHED 1145 1 Cr. Bowling Provides students with knowledge and practice in the sport of bowling. Students learn bowling rules, skills, techniques, and appreciation.</p>	<p>PHED 1177 1 Cr. Intercollegiate Women's Golf Provides credit to first year students who report for the gold squad and who complete the requirements of the course. Completion includes participation in the Minnesota Community College Athletic Conference.</p>
<p>PHED 1155 1 Cr. Cross-Country Skiing Introduces the student to the fundamentals of the sport. Flat-track techniques, downhill and hill climbing techniques are covered. Equipment provided.</p>	<p>PHED 1178 1 Cr. Intercollegiate Men's Golf Provides credit to first year students who report for the golf squad and who complete the requirements of the course. Completion includes participation in the Minnesota Community College Athletic Conference.</p>
<p>PHED 1160 1 Cr. Beginning Golf Focuses on helping beginning golfers understand the fundamentals of golf as a recreational activity.</p>	<p>PHED 2110 2 Cr. Prevention and Care of Athletic Injuries II Continues PHED 1110. Emphasizes the anatomy, kinesiology, and care of knee, thigh, and lower leg injuries. Shoulder, elbow, arm, and hand injuries are also studied. Prerequisite: PHED 1110.</p>
<p>PHED 1170 1 Cr. Intercollegiate Football Consists of intercollegiate competition in football at the community college level. Football skills, sportsmanship, competitiveness, and sound athletic principles are taught.</p>	<p>PHED 2101 2 Cr. History of Physical Education and Sports Reviews the reciprocal relationship between sport and America's dominant social and cultural themes from the colonial period to the present. Explores the foundations on which modern American sports were laid and the social forces which led to the organization</p>
<p>PHED 1171 1 Cr. Intercollegiate Volleyball Provides credit to first year students who report for the volleyball squad and who complete the requirements of the course. This includes participation in Minnesota Community College Athletic Conference competition.</p>	

and institutionalization of amateur, intercollegiate, and professional sports. Includes an examination of the ways in which ethnic heritage, race, socio-economic class, and gender intersect with the social institution of American sport.

PHED 2135 1 Cr.

Intermediate Tennis

Continues PHED 1135. Stresses the fundamentals of tennis as a leisure time activity as well as the competitive aspects of the sport. Emphasis is on acquiring technique, knowledge, fitness, and the strategy of the game.

PHED 2140 2 Cr.

Theory and Technique of Body Conditioning

Teaches methods and techniques of physical conditioning. Includes the use of theory in designing different fitness programs. Prerequisite: PHED 1140 or PHED 1130 or consent of instructor.

PHED 2170 1 Cr.

Intercollegiate Football

Consists of intercollegiate competition in football at the community college level. Football skills, sportsmanship, competitiveness, and sound athletic principles are taught.

PHED 2171 1 Cr.

Intercollegiate Volleyball

Provides credit to second year students who report for the volleyball squad and who complete the requirements of the course. This includes participation in Minnesota Community College Athletic Conference competition.

PHED 2172 1 Cr.

Intercollegiate Men's Basketball

Provides credit for second year participants. The course consists of a twenty-game schedule against other community colleges in Minnesota.

PHED 2173 1 Cr.

Intercollegiate Women's Basketball

Includes participation in intercollegiate competition in women's basketball at the community college level representing Minnesota West Community and Technical College, Worthington Campus in the Minnesota Community College Athletic Conference.

PHED 2174 1 Cr.

Intercollegiate Wrestling

Provides credit to second year students who report for the wrestling squad and who complete the requirements of the course. This includes participation in Minnesota Community College Athletic Conference competition.

PHED 2175 1 Cr.

Intercollegiate Women's Softball

Includes participation in intercollegiate competition in women's softball at the community college level representing Minnesota West Community and Technical College, Worthington Campus in the Minnesota Community College Athletic Conference.

PHED 2176 1 Cr.

Intercollegiate Baseball

Includes participation in intercollegiate competition in men's baseball at the community college level representing Minnesota West Community and Technical College, Worthington Campus in the Minnesota Community College Athletic Conference.

PHED 2177 1 Cr.

Intercollegiate Women's Golf

Provides credit to second year students who report for the golf squad and who complete the requirements of the course. Completion includes participation in the Minnesota Community College Athletic Conference.

PHED 2178 1 Cr.

Intercollegiate Men's Golf

Provides credit to second year students who report for the golf squad and who complete the requirements of the course. Completion includes participation in the Minnesota Community College Athletic Conference.

PHED 2181 2 Cr.

Wrestling Coaching and Officiating

Course content covers the guidelines of the State and National High School League rules including rules interpretation, match technique, and casebook studies. Course will also cover the coaching aspects of wrestling, match tactics, scouting, recruiting, team goals, methods of conducting practice, student academic concerns, and handling players at both high school and college settings.

PHED 2184 1 Cr.

Officiating Volleyball

Reviews high school volleyball rules and the basic mechanics of officiating volleyball. A comparison between high school rules and college volleyball rules is made to better enable students to work at and understand both levels.

PHED 2183 2 Cr.

Basketball Coaching and Officiating

Reviews in detail high school basketball rules and the basic mechanics of officiating basketball. A comparison between high school rules and college basketball rules is made to better enable students to work at and understand both levels.

PHED 2187 2 Cr.

Baseball/Softball Coaching and Officiating

Course content covers the guidelines of the State and National High School League rules including rules interpretation, game technique, and casebook studies. Course will also cover the coaching aspects of baseball and softball, game tactics, scouting, recruiting, team goals, methods of conducting practice, student academic concerns, and handling players at both high school and college settings.

PHED 2188 2 Cr.

Football Coaching and Officiating

Course content covers the guidelines of the State and National High School League rules, including rules interpretation, field mechanics, and casebook studies.

Course will also cover the coaching aspects of football, game tactics, scouting, recruiting, teams, methods of conducting practice, student academic concerns, and handling players at both high school and college settings.

PHED 2235 1 Cr.

Special Topics

Covers a wide range of issues and skill development. Particular topics will be chosen to meet the needs of Physical Education students. The class may be retaken for credit if the topic varies.

PHILOSOPHY (PHIL)

PHIL 1101 3 Cr.

Introduction to Philosophy

Introduces students to four of the five main areas of philosophical inquiry and the questions basic to each: ethics (What is the nature of the good?), epistemology (What is the nature of knowledge and truth?), metaphysics (What is the nature of reality?), and social/political theory (What is the nature of a good state?). Using primary texts and class discussion, students will explore the answers philosophers such as Plato, Mill, Kant, Hume, Locke, and Nietzsche have offered.

PHIL 1102 2 Cr.

Philosophy of Religion

Concerns topics relative to religion and God, including arguments for the existence of God, religious experience, faith and reason, the problem of evil, and immortality. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

PHIL 1200 3 Cr.

Logic

Introduces students to informal logic. Students will learn to identify and outline arguments in classic and contemporary texts and to determine an argument's validity and soundness. Students will also learn to identify logical fallacies. Prerequisite: ENGL 1101. This course also counts as a Mathematical/Logical Reasoning course.

PHIL 2201 1 Cr.

Introduction to Ethical Theory

Studies classical and contemporary ethical theories. The main purpose is to critically examine the various approaches to moral conduct through the reading of primary sources and class discussion. Required prior to taking any ethics course (2202, 2203, 2204, and 2223).

PHIL 2202 1 Cr.

General Applied Ethics

Studies contemporary ethical issues. The main purpose is to critically examine the various approaches to moral conduct. The focus will be on the application of these theories and principles to specific contemporary issues. Prerequisite: PHIL 2201.

PHIL 2205 2 Cr.

Business Ethics

Introduces students to ethical problems in businesses and companies or corporations through presentations by local business, community and corporate leaders on moral behavior and ethical dilemmas in areas such as: medicine, international trade, profit and non-profit organizations, and education.

PHIL 2222 1 Cr.

Medical Ethics

Introduces students to the principles of ethics and how these apply to health care practice. Students will examine two main ethical theories, utilitarian and deontological, as they apply to questions of health care practice. Students will study the ethical principles of autonomy, nonmaleficence, and beneficence. The focus will be on the application of these theories and principles to specific cases. The course is designed for students intending to major in the field of health care. Prerequisite: PHIL 2201.

PHIL 2223 1 Cr.

Ethics for Human Services Workers

Introduces students to the principles of ethics and how these apply in the human services field. Students will examine two main ethical theories, utilitarian and deontological, as they apply to questions of ethical practice in human services. Students will study the ethical principles of autonomy, nonmaleficence, and beneficence. The focus will be on the application of these theories and principles to specific cases. The course is designed for students intending to major in human services. Prerequisite: PHIL 2201 and for human services students only.

PHIL 2231 1 Cr.

Western Religions: Christianity, Islam, and Judaism

Explains four Western Religions, focusing on the development of the students' understanding and appreciation of each. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

PHIL 2232 1 Cr.

Eastern Religions: Hinduism, Buddhism and Confucianism

Explores three Eastern Religions, focusing on the development of the students' understanding and appreciation of each. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

PHIL 2233 1 Cr.

Natural Religions: Taoism, Shamanism and Native American

Explores three natural religions focusing on the development of the students' understanding and appreciation of each. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

PHYSICS (PHYS)**PHYS 1100** 3 Cr.**Survey of Physics**

Includes a general survey of conceptual physics. Topics include a basic introduction to Newton's Laws of motion, gravity, physical mechanics, properties of matter, heat, sound, electricity, magnetism, light and nuclear physics. This is mainly a lab activity course for students who have not had high school physics. Prerequisite: High school algebra I or MATH 0098 or higher.

PHYS 1201 4 Cr.**Fundamentals of Physics I**

Develops a foundation for future studies in fields not requiring the calculus. Laboratory and lecture based instruction using both calculator and computer based instruction. Develops a foundation in physics for liberal arts, pre-medical, or pre-pharmacy students. Topics studied include one and two-dimensional motion, forces and acceleration, applications of Newton's Laws, momentum, gravitation, collisions, work and energy, rotational motion, and angular momentum, harmonic motion and sound. Prerequisite: MATH 0099 or higher.

PHYS 1202 4 Cr.**Fundamentals of Physics II**

Topics include temperature and heat transfer, laws of thermodynamics and heat engines, electric fields, electricity of direct current circuits, electronics magnetism and radioactivity. Prerequisite: MATH 0099 or higher.

PHYS 2121 5 Cr.**General Physics I**

Uses Laboratory centered instruction with both computer and calculator based investigations. This course in the fundamentals of physics is for students intending to study engineering or the sciences. Calculus and vectors are used throughout. Topics include kinematics, Newton's Laws of motion, forces, collisions, momentum, work and energy, energy and momentum conservation, rotational motion, angular momentum, and torque, harmonic motion, chaos, waves and sound. Prerequisite: MATH 1121 or concurrent enrollment in MATH 1121.

PHYS 2122 5 Cr.**General Physics II**

Uses laboratory centered instruction with both computer and calculator based investigations. This course in the fundamentals of physics is for students intending to study engineering or the sciences. Calculus and vectors are used throughout. Topics include heat, thermodynamics, heat engines, electric fields, Gauss' Law, electric and gravitational potential, electrical circuits, capacitance, magnetism, electromagnetism, electronics, and radioactivity. Prerequisite: MATH1122 or concurrent enrollment in MATH1122.

PHYS 2235 1-3 Cr.**Special Topics**

Explores specific areas of physics to meet specialized student needs or interests. This class may be retaken for credit if the topic varies.

PLUMBING (PLMB)**PLMB 1100** 3 Cr.**Code**

This course covers the Minnesota Plumbing Code, as it relates to the principals, materials, traps, and fixtures in the Plumbing Trade.

PLMB 1106 3 Cr.**Plumbing Installation**

The goals of this course are to learn installation and repair of fixtures, faucets, and various valves used in the plumbing trade. Also covered will be the manufactures installation recommendations, uniform plumbing code, and good housekeeping practices.

PLMB 1110 3 Cr.**Introduction to Plumbing**

This course is specifically introducing students to the tools and equipment of the trade. It focuses on the skills needed to enter the plumbing trade, the necessity of safety in the workplace and methods described in the Minnesota Plumbing Code.

PLMB 1115 3 Cr.**Plumbing Welding**

The student will learn basic arc and gas welding. The proper safety and usage of the equipment of welding.

PLMB 1120 3 Cr.**Plumbing Piping Water**

The student will become familiar with the types of water piping, the fittings, and the proper installation procedures. they will develop skills in joining and supporting various piping according to the Minnesota Plumbing Code.

PLMB 1125 2 Cr.**Plumbing Piping Fuels/Air**

The student will learn the various techniques of piping gas and air, the materials necessary and the safety requirements.

PLMB 1130 2 Cr.**Blueprint Reading and Estimating**

This course will give the student a good background in blueprint reading, drawing techniques, materials usage, specifications and the necessity of good estimating skills.

PLMB 1135 2 Cr.**Sewage Disposal and Survey**

This course will give the student the methods of calculating sewage disposal systems from the Minnesota Pollution Control and the University of Minnesota Extension methods. The student will run percolation tests and install an individual sewage typical.

PLMB 1140 3 Cr.
Plumbing Pipefitting

This course will train the student in the applications, and safety of installing piping for various applications. The student will complete a typical pipefitting project and draw isometrically the proper layout.

PLMB 1145 3 Cr.
Plastic Installation

This course will develop the students ability to install plastic piping for the Plumbing industry. The student will install, draw isometrically, and price materials used in the typical installation.

PLMB 1150 2 Cr.
Water Treatment Methods/Codes

This course will direct the student toward the problems of water and the recommended methods of treatment. The student will calculate the size of many treatment devices and gain an understanding of proper use, servicing and installing of the equipment.

PLMB 1155 2 Cr.
CAD/Estimating

The students will to work on various computer aided drafting programs. They will gain the skills to compete in the residential estimating/CAD marketplace with the knowledge of plumbing.

PLMB 1165 2 Cr.
Trade House Plumbing

The students will actually install a system in a building and be involved in actual construction from the ground up to completion of a plumbing system. They will estimate the materials, and isometrically draw the waste and water systems.

PLMB 1170 3 Cr.
Sheetmetal Technology

The focus of this course will give the student proper and safe installations. The course will require the student to size, design, build, and install air duct. The course will require the student to troubleshoot problems of air and correct them. The ventilation requirements will be calculated into the system.

PLMB 1175 2 Cr.
Special Problems

This course will address actual plumbing problems and afford the student the opportunity to repair, alter, replace or service existing plumbing systems.

POLITICAL SCIENCE (PSCI)

PSCI 1101 3 Cr.
Introduction to Political Science

Acquaints students with the fundamental concepts, institutions, principles and procedures of the discipline of political science. The course will provide a brief background in classical political theory through some exposure to the ideas of past political philosophers (such as Aristotle, Machiavelli, Hobbes, Locke, Marx and others). The course also introduces the study of comparative systems through consideration of the governments of Great Britain, France, and Canada. PSCI 1101 is viewed as a general introductory course.

The course also counts as a Global Perspective course.

PSCI 1201 3 Cr.
American Government and Politics

Presents a general survey of the history, philosophy, functions and performance of American national political institutions and processes. This course also emphasizes ethical and civic responsibility. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

PSCI 2202 3 Cr.
State and Local Government

Presents a general survey of the history, philosophy, functions and performance of American state and local political institutions and processes. Minnesota, Nobles County and the City of Worthington will be examined. This course also emphasizes ethical and civic responsibility.

PSCI 2210 3 Cr.
Environmental Politics

Examines the political nature of environmental problems and surveys American political institutions and public policies that deal with these problems. The course will also assess and critique current environmental policies. While the major emphasis will be national environmental concerns, certain local and global environmental problems will also be addressed.

PSCI 2235 1-3 Cr.
Special Topics

Offers a wide range of issues of current interest. This class may be retaken for credit if the topic varies.

PSYCHOLOGY (PSYC)

PSYC 1101 4 Cr.
Introduction to Psychology

Provides an overview of contemporary psychology. Topics include the biological bases of behavior, sensation and perception, motivation, learning, memory, development, personality theory and disorders. Emphasis is given to biological, ability, age, gender, personality, and ethnic diversity. This course is a prerequisite for all other psychology courses. Required course for many degree programs. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

PSYC 1111 3 Cr.
Psychology of Adjustment

Uses a largely cognitive-behavioral approach to achieving personal growth and effectively managing common problems of daily living. Issues studied include managing stress, love and relationships, sexuality, loneliness and solitude, death and loss, esteem, and life goals. Prerequisite: PSYC 1101.

PSYC 1140 3 Cr.
Child and Adolescent Psychology

Studies the physical, cognitive and psychosocial development of individuals from conception through adolescence, and effective means of fostering positive

development in these areas. Prerequisite: PSYC 1101 or consent of instructor. Required course for Human Services - Child Development Track majors.

PSYC 1141 **2 Cr.**
Psychology of Adulthood and Aging

Presents the basic views, principles, research findings, and ideas about adulthood from an interdisciplinary, process-oriented perspective. Adopting this perspective allows an understanding of the developing individual through an analysis of the biological, social, and cultural contexts in which aging occurs. An overview of the research methods used to investigate psychological development over the adult lifespan will be explored. Career paths and opportunities within the field of adult development will be presented. Prerequisite: PSYC 1101 or consent of instructor. May be taken in sequence with PSYC 1140, for greater breadth and depth than PSYC 1150.

PSYC 1150 **3 Cr.**
Developmental Psychology

Describes the ongoing processes in the biosocial, cognitive, and psychosocial domains of human development throughout the lifespan. Analysis of major developmental events from psychoanalytic, learning, cognitive, and humanistic perspectives will be included. How research contributes to the understanding of development and the application of research findings will be considered. Should not be taken for credit if one has taken Child and Adolescent Psychology 1140.

PSYC 2210 **3 Cr.**
Basic Counseling Skills

Provides students with an overview of various counseling theories including Adler and Individual Psychology; Jung and Jungian Analytical Psychology; Rogers and Person-Centered Counseling; Beck and Cognitive Theory; Behavior Therapy and Cognitive-Behavior Therapy; and Existential and Gestalt Therapy. This course also focuses on learning the basic micro-skills of counseling including attending and active listening; questioning; observation; influencing skills; and specific skills critical to multi-cultural counseling. Students videotape counseling sessions in a lab setting. Prerequisite: PSYC 1101.

PSYC 2221 **3 Cr.**
Abnormal Psychology

Provides students with historical and current views of the major patterns of behavior disorders. Examines the etiology of disorders, their symptom patterns, assessment and classification, their prevention and treatment, and current issues in the mental health field. Attention is given to how social variables such as race/ethnicity, gender, and socioeconomic status affect determination of abnormality. Prerequisite: PSYC 1101 or consent of instructor.

PSYC 2225 **3 Cr.**
Addictive Behaviors

Provides a comprehensive overview of psychological models to understanding addiction. Presents the

process of addiction as sequence which includes: initiation, maintenance, dependence, and change. Also addressed is prevention of addiction. Describes the biological, social, emotional, and psychological consequences of addictions for the individual and society. Although concentrating on substance-based behaviors (alcohol and drugs) other addictions such as gambling, eating disorders, and compulsive sexual behavior will be considered. Prerequisite: PSYC 1101 or consent of instructor.

PSYC 2230 **3 Cr.**
Behavior Modification

Introduces the principles of behavior modification and the application of these principles to the modification of maladaptive behavior. Students learn specific skills to modify behavior including observing, recording and graphing behavior and measuring change; reinforcement; extinction; punishment; stimulus control; shaping; chaining; prompting; fading; and functional assessment. Prerequisite: PSYC 1101. This course can substitute for HSER 1132. HSER 1132 cannot substitute for this course.

PSYC 2235 **1-3 Cr.**
Special Topics

Offers a wide range of issues of current interest. This class may be retaken for credit if the topic varies.

RENEWABLE ENERGY (RNEW)

RNEW 1100 **3 Cr.**
Process Dynamics

An introduction to the terminology frequently encountered in an operating plant environment. A brief description and explanation of a plant system, and an introduction to the principles of flow, pressure, temperature and level. How to read indicating instruments of same.

RNEW 1101 **2 Cr.**
Ethanol Process Fundamentals

Covers in detail the overall fundamental process of ethanol production. A Process Flow Diagram (PFD) of a typical ethanol plant will be used to examine the sequence of operation, including residence time, pressures, and temperature seen in various stages of production. This course will explain the rationale for feedstock and additives used in ethanol processing as well as product and co-product production and use.

RNEW 1102 **2 Cr.**
Biodiesel Process Fundamentals

Covers in detail the overall fundamental process of biodiesel production. The course will include a review of biodiesel chemistry, process engineering, post reaction processing, fuel specification and properties, feedstock preparation, treatment and recovery of side streams, fuel transportation storage and general plant operations.

RNEW 1105 **1 Cr.**
Introduction to OSHA

What is OSHA? Why is it important in an operating plant environment? What safety practices should you

implement in a plant operating environment and how to avoid unsafe situations?

RNEW 1110 1 Cr.
Low & High Pressure Boiler Systems

This course covers fuel combustion principles, steam boiler types and their components. Students will gain an understanding of the equipment its operation and maintenance to ensure safe and efficient procedures that are in line with regulations and codes.

RNEW 1115 2 Cr.
Mechanical Fundamentals

A basic understanding of pumps, valves, compressors and heat exchangers. How to start, operate and shutdown pumps. How to troubleshoot common operating problems of pumps. Identification of the different kinds of pumps, heat exchangers and compressors.

RNEW 1120 1 Cr.
Mechanical Fundamental Lab

This lab course, geared toward on-campus students, will fulfill one of the technical elective credits for the Renewable Energy Technology Program. This lab gives hands on exposure to pumps, valves, compressors, and heat exchangers. It will explain the proper procedure on how to start, operate and shutdown pumps. Troubleshooting common operating problems of centrifugal pumps will be discussed. Functions & characteristics of reboilers, cooling towers, and condensers will be covered in detail.

RNEW 1125 1 Cr.
P & ID & PFD Reading

This course will cover the symbols and diagrams commonly used on piping and instrumentation diagrams (P & ID's) and electrical one-line diagrams. Focus will be on identifying the types of diagrams, identifying instrument symbols and line symbols used on P & ID's, understanding the types of information typically found on a legend, using a P & ID to locate the components of a system, identification of symbols used on electrical one-line diagrams and reading a flow diagram to trace the flow paths of a system.

RNEW 1130 2 Cr.
Pollution Control Fundamentals

What are the sources of pollution from a processing plant? How to mitigate pollution emissions, and why is it important to reduce emissions. What regulatory agencies oversee permitting and enforcement issues state and countrywide.

RNEW 1135 4 Cr.
Distillation & Evaporative Theory

Students will understand the theory behind distillation and evaporation. Know the operating parts in a distillation system and how to interpret normal operating conditions. Know how to troubleshoot common operational problems. Be familiar with safety procedures in starting, cleaning, operating and shutting down a distillation system. Be familiar with the evaporative process and its role in processing plants. A distillation simulator will be available for laboratory use.

RNEW 1140 2 Cr.
Process Plant Chemistry

This course is designed to overview the relationship of science, technology and management areas in regard to agricultural processing plant operations. The course has a strong emphasis on the product, operational, and business aspects of agricultural processing plants. Prerequisite: CHEM 1150.

RNEW 1145 1 Cr.
Renewable Energy Seminar

This course is a seminar series with invited speakers from the agricultural processing industry. Topics will include such things as the future of agricultural processing, new products on the horizon, the role of genetic engineering in agricultural processing, the economics of a processing plant, and supervisory skills important to those in the Ag Processing industry.

RNEW 1155 3 Cr.
Process Optimization/Troubleshooting

This course is designed to pull together all the concepts explored in the previous three semesters and apply them in real-life case studies. Participation in class will be critical. The concept that decisions made by the process operator have immediate impacts on the bottom-line of a company will be an important theme running through this course. Emphasis will be placed on report generating and interpreting using real-life examples. Prerequisite: RNEW 1135.

RNEW 1160 3 Cr.
Instrumentation & Control

This course will look at the fundamental concepts of programmable controls: hardware identification and application, and system testing. The course will also cover the calibration troubleshooting of equipment used to measure flow rate, pressure, temperature and level.

RNEW 1165 4 Cr.
Company Internship

The company internship will allow the student to experience the agricultural processing industry in a firsthand way. The student will be able to see real-life application of the theories and concepts taught in the academic program.

RNEW 1170 2 Cr.
Microbial Ecology

Microbial Ecology introduces students to structure, classification, and ecology of microorganisms, especially as it relates to an industrial processing plant. Prerequisite: BIOL 1110.

RNEW 1175 2 Cr.
Industrial Water Treatment

This course covers the basic understanding of primary water treatment systems and chlorination. Students will be able to describe problems that can be caused by impurities in the water and explain how they can be removed physically and chemically. This course will also familiarize students with the basic concepts of treating industrial wastewater so it can be reused or discharged into the environment.

RNEW 1185 1 Cr.

Ethanol Process Fundamentals Lab

This lab course, geared toward on-campus students, will fulfill one of the technical elective credits for the Renewable Energy Technology Program. This lab gives hands on exposure to concepts, which deal with physical forces and their relationship to energy through temperature and pressure and are frequently encountered in an operating plant environment. An explanation and understanding of a plant system is crucial to this course. The scientific principles of flow, temperature, pressure, heat, gases, liquids, solids, fluid systems, process dynamics and heat transfer, are covered in detail. The curriculum of this course encompasses basic physics and science.

RNEW 2105 1 Cr.

Process Dynamics Lab

This lab course, geared toward on-campus students, will fulfill one of the technical elective credits for the Renewable Energy Technology Program. This lab gives hands on exposure to the essential elements of a process control system. It will cover common types of electrical and pneumatic signals used for data collection while exploring devices used to measure flow rate, pressure, temperature, level and analytical control. This course will compare fundamental control concepts such as on/off and PID. It will explain how control concepts are used in the various control loops of feedback, cascade, ratio, and feedforward.

RNEW 2165 1 Cr.

Instrumentation & Control Lab

This lab course, geared toward on-campus students, will fulfill one of the technical elective credits for the Renewable Energy Technology Program. This lab gives hands on exposure to the rational and overall fundamental process of ethanol production. A Process Flow Diagram (PFD) of a typical dry mill ethanol plant will be used to examine the sequence of operation, including residence time, pressures, and temperatures seen in various stages of production. This course will explain the rational for feedstock and additives used in ethanol processing as well as product and co-product production and use.

RNEW 2235 1-4 Cr.

Special Topics

This course will cover a wide range of issues of current subjects in the field of renewable energy. This class may be retaken for credit if the topic varies.

ROBOTIC TECHNOLOGY (ROBT)

ROBT 1000 2 Cr.

Intro to Pneumatics

An overview of basic pneumatics, pneumatic fri's, pneumatic valves, pneumatic actuators, and vacuum devices.

ROBT 1020 2 Cr.

Basic Electromechanical Controls

Students have an opportunity to develop skills in designing, wiring, troubleshooting, and operation of electrical control circuits.

ROBT 1030 2 Cr.

Electric Control Sensors

This course covers the theory and operation of all automation sensors.

ROBT 1040 3 Cr.

Intro to Programmable Logic Controllers (plc's)

Students receive an understanding of and the ability to use solid state programmable logic controllers and circuits to control and power all phases of industrial automation.

ROBT 1050 2 Cr.

Basic Troubleshooting

This course covers basic and advanced troubleshooting techniques. Students will discover new and unique methods to correct problems with all types of automated systems.

ROBT 1060 2 Cr.

Robot Overview

The function, operation, and application of common types of robots used in automation systems.

ROBT 1070 2 Cr.

Statistical Process Control for Automation Technicians

This course covers the basics of Statistical Process Control.

ROBT 1100 3 Cr.

Fluid Power Fundamentals Lab I

This course covers basic equipment, hydraulic concepts, fluid power formulas and applications. Supervised hands on lab time.

ROBT 1105 3 Cr.

Electrical Circuits Fundamentals

Electrical circuits is a foundation course for all students enrolled in the Robotics program. It provides an understanding and application of basic electricity and resistive circuits. AC and DC voltage sources, electrical laws, and theorems involving resistive type circuits will be covered in lecture and applied in the associated laboratory course.

ROBT 1106 2 Cr.

Electrical Theory I

Electrical Theory I is a foundation course for all students enrolled in the Robotics program. It provides students with an understanding and application of basic electricity and resistive circuits. DC voltage sources, electrical law, and theorems involving resistive type circuits will be covered in lecture and applied in the associated laboratory course. (Concurrent with ROBT1111)

ROBT 1107 3 Cr.

Electrical Theory I/Lab

Electrical Theory I is a foundation course for all students enrolled in the Robotics program. It provides students with an understanding and application of basic electricity and resistive circuits. DC voltage sources, electrical law, and theorems involving resistive type circuits will be covered in lecture and

applied in laboratory. Students receive hands-on training. Resistors with capacitors, inductors, transformers, AC/DC source, and bench test equipment will be connected to allow students to test and troubleshoot various series and parallel circuits.

ROBT 1111 **2 Cr.**
Electrical Circuits Fundamentals Lab

Electric Circuits Fundamentals Lab supplements the Electric Circuits Fundamentals course. It provides students with hands-on training. Resistors with capacitors, inductors, transformers, AC/DC source, and bench test equipment will be connected to allow students to test and troubleshoot various series and parallel circuits.

ROBT 1115 **3 Cr.**
Fluid Power Hyd/Pneu Circuits Lab

An overview of hydraulic pumps, continuous rotation motors, limited rotation motors, cylinders, pneumatic FRLs, pneumatic valves, pneumatic actuators and vacuum devices.

ROBT 1121 **2 Cr.**
Advanced AC Concepts

This course will cover power supplies, transformers, three phase power and three phase motors. It will also include the design of 3 phase motor starter circuits.

ROBT 1122 **2 Cr.**
Electrical Theory II

This course will cover power supplies, transformers, 3 phase power and 3 phase motors. It will also include the design of 3 phase motor starter circuits.

ROBT 1126 **2 Cr.**
Advanced AC Concepts Lab

An opportunity to practice those skills learned in ROBT1120. A hands-on approach to design and wiring of power supply, three phase power, and motor control circuits.

ROBT 1130 **2 Cr.**
Robotics Drafting

This course covers fundamentals of industrial drawing. All drawings will be done on the computer using CAD software.

ROBT 1135 **2 Cr.**
Electromechanical Systems

Students have an opportunity to develop skills in designing, wiring, troubleshooting, and operation of electrical control circuits.

ROBT 2100 **3 Cr.**
Robotic Theory(PLC's Motors)

Students will learn to program and hardwire various programmable logic controllers. Students will gain hands-on experience with PLCs.

ROBT 2105 **5 Cr.**
Robotic Lab(PLC's/Motors)

Provides students with an understanding of and the ability to use solid state programmable logic controllers

and circuits to control and power all phases of industrial automation.

ROBT 2111 **3 Cr.**
Electric Motors/Sensors

This course covers electric motors and sensors used in automated systems.

ROBT 2115 **3 Cr.**
Machine Shop

The use of basic machine shop equipment. Milling machines, lathes, grinders, and drill machines will be used by the students. Time will also be spent becoming familiar with NC, CNC, and computer aided manufacturing. Precisions measuring tools will also be worked with.

ROBT 2120 **4 Cr.**
Machine Automation Theory

Provides students with an understanding of the function, operation, and application of common industrial automation components.

ROBT 2125 **4 Cr.**
Machine Automation Lab

A supervised time for students to gain hands-on experience in the designing and implementing of automatic components.

ROBT 2130 **1 Cr.**
Robotics Mechanism/Design

A study of properties of materials, metals, force, and motion applied to simple mechanisms. It addresses design stress and loadings on various shaft applications.

ROBT 2135 **2 Cr.**
Robotic Workcell Development

Provides students with an understanding of and the ability to use industrial robots in automated manufacturing plants.

ROBT 2140 **2 Cr.**
Proportional & Servo Circuits

This course will introduce students to basic proportional and servo valves and their functions.

ROBT 2131 **2 Cr.**
Robotics Mechanism/Design

This course covers the study of properties of materials as it relates to the design of machine parts and shafts. Design stresses, forces and moments will be calculated.

SMALL BUSINESS MANAGEMENT (SBMT)
SBMT 1110 **2 Cr.**

Organization Planning
 In this course the business owner or manager will conduct a self-study of the business and an analysis of the various business systems. The results will be used to begin the process of establishing a new or updated business plan, including a mission statement, vision statement, and business goals.

<p>SBMT 1120 Business Systems In this course, the business owner or manager will begin the process of creating or updating a business plan. The course will include an overview of the business planning process, the individual components of a business plan, and the process for building a business plan. A business plan for the business is the desired outcome.</p>	<p>3 Cr.</p>	<p>SBMT 1315 Principles of Supervisory Leadership This course will assist the student to become better acquainted with realistic problems, which must be confronted along with practical advice for solutions. The focus will be an explanation and translation of management principles and theories into tools that can be used in the everyday practice of supervision.</p>	<p>3 Cr.</p>
<p>SBMT 1210 Financial Systems In this course the business owner or manager will study product pricing for optimizing business profits, budgeting to monitor business revenues and expenses, and cost control options</p>	<p>3 Cr.</p>	<p>SBMT 1320 Innovation and Creativity This course will provide learners with an opportunity to explore the essential concepts of accelerated learning. Learners will be exposed to research on "how to learn", as well as examine the process of non-linear thinking. With this information learners will be able to utilize processes for finding business opportunities within their organization.</p>	<p>1 Cr.</p>
<p>SBMT 1220 Financial Management In this course the business owner or manager will study product pricing for optimizing business profits, budgeting to monitor business revenues and expenses, and cost control options for the small business. The student will also create a break-even analysis of the business and study the effect of different business decisions using a break-even analysis.</p>	<p>3 Cr.</p>	<p>SBMT 1325 Problem Solving and Decision Making This course will provide learners with an opportunity to explore the essential concepts of problem solving and decision-making. Learners will learn how thinking differently can help them solve problems and make decisions. Learners will break complex problems into workable components, and will learn to go beyond preconceived limitations when developing solutions.</p>	<p>2 Cr.</p>
<p>SBMT 1230 Financial Analysis In this course the business owner or manager will study how to analyze the profit and loss statement, the balance sheet, and cash flow statement using ratio and trend analysis. Prerequisite: SBMT 1210.</p>	<p>3 Cr.</p>	<p>SBMT 1330 Interpersonal Skills This course is designed to assist learners in improving their one-on-one communication skills. The learner will analyze the variables common to interpersonal communication and learn techniques to overcome barriers to effective communication.</p>	<p>1 Cr.</p>
<p>SBMT 1268 Governmental Payroll Reporting for Small Business This course covers the fundamentals, completion, and analysis of the federal and state employment tax forms and filing requirements.</p>	<p>2 Cr.</p>	<p>SBMT 1335 Teamwork This course will address the context, which contributes to the growth of team based work systems, the essentials for conducting effective meetings and skills necessary for participating in and leading successful teams.</p>	<p>1 Cr.</p>
<p>SBMT 1310 Conflict Resolution This course covers techniques for resolving conflict and negotiating collaborative solutions in workplace settings. Conflict resolution and negotiation strategies are essential for supervisors and other persons in leadership positions. Emphasis will be placed on selecting and applying conflict resolution and negotiation strategies that are appropriate for a given situation. Students will learn to effectively confront conflict in its early stages and to negotiate solutions beneficial to all persons involved.</p>	<p>1 Cr.</p>	<p>SBMT 1340 Time Management Provides learners with an opportunity to explore the essential concepts of time management. The learner will explore ways of dealing with the daily challenge of successfully juggling multiple priorities, which require a clear understanding of individual time management strengths, and weaknesses and a well-practiced self managed strategy. The learner will analyze their time management habits and development improvement plans to become a time master.</p>	<p>1 Cr.</p>
<p>SBMT 1312 Marketing Systems The business owner or manager will study the 5 P's of marketing, product, pricing, presentation, promotion, and packaging. The business owner or manager will apply them to their business entity. They will also use these concepts to design a marketing strategy to create the desired business image.</p>	<p>3 Cr.</p>	<p>SBMT 1345 Finances for the Non-Financial Manager This course will provide learners with an opportunity to explore the essential concepts of financial analysis and improve their decision-making skills. This course is for students who have little experience in the field of finance. The students will explore the financial activities practiced by nonfinancial managers who are</p>	<p>3 Cr.</p>

responsible for resources and interested in improving the financial performance and destiny of their organization.

SBMT 1400 2 Cr.
Employment

The learner will be introduced to an overview of the employment process with emphasis on hiring practices and procedures, job descriptions, advertising the position, screening applicants, interview process, reference checks, hiring process, and orientation.

SBMT 1405 2 Cr.
Customer Service

The learner will be introduced to practical tools for the development and management of effective customer relations. The learner will identify the broad range of external and internal customer relations and identify quality assurance requirements and expectations.

SBMT 1410 4 Cr.
Personnel Supervision

This course will introduce the student to the various components of personnel supervision, which are unique to the healthcare industry.

SBMT 1415 4 Cr.
Leadership

This course will introduce the student to the various components of leadership, which are unique to the healthcare industry.

SBMT 1420 2 Cr.
Corporate Compliance

There is an increased emphasis on corporate compliance in the healthcare industry. Managers must be well informed of legal and financial requirements in order to make good management decisions. The reimbursement processes and practices are unique to this industry. This course will focus on the development and management processes required to ensure compliance with federal and state laws and regulations such as the Emergency Medical Treatment & Active Labor Act (EMTALA), the Health Insurance Protection & Portability Act (HIPPA), the Omnibus Budget Reconciliation Act (OBRA) and Medicare and Medicaid reimbursements. Additional topics include violence in the workplace as related to healthcare, and vulnerable adults and minors' legislation.

SBMT 1430 1 Cr.
Healthcare Industry Trends

This course will assist the student to become better acquainted with changing technology and new programs and services in healthcare.

SBMT 1435 1 Cr.
Marketing in Healthcare

This course will assist the student to become better acquainted with the changing technology and new programs and services in healthcare.

SBMT 1425 3 Cr.
Finance for Healthcare

This course will assist the student to become better acquainted with terms and definitions used in finance for Healthcare Facilities.

SBMT 1511 3 Cr.
Introduction to Small Business Management

A distance learning course of study designed to define small business and its importance in the free enterprise system. The basic elements of management and the responsibility of business owners and managers toward society are also examined. This course is intended to acquaint individuals, interested in starting their own business or pursuing a career in small business management on the many facets of managing and operating a successful small business enterprise. Student will, through the use of business simulations (case studies), develop a basic knowledge of small business management.

SBMT 1521 3 Cr.
Advertising and Promotion

This course covers the basics of advertising and promotional activities for a small business. The student will examine advertising, planning, budgeting, promotions, and publicity, along with advertising copy and layout. Advertising is the backbone of attracting customers. Successful business owners create an advertising blue print or plan. Without a plan, advertising dollars can be wasted along with the opportunity to attract new customers and retain existing customers.

SBMT 1541 3 Cr.
Introduction to Supervisory Management

This course emphasizes the theories, methods, and techniques of supervision, and addresses such topics as goal-setting, productivity, managing human resources, team building, leadership, motivation, delegation, and appraisal. The course focuses on providing students with a practical application of supervision skills through the use of practical case studies, learning objectives, and video examples. Students will explore each of these skills as they apply to supervising employees.

SBMT 1561 3 Cr.
Entrepreneurship - How to Start a Successful Business

This course is designed to present students with an understanding of the venture startup process. Students will learn skills that help them develop their venture concept, research the market, and development of a feasibility study. Various exercises will provide self-employment assessment, feasibility considerations, venture planning, and creating a written business plan.

SBMT 1571 1 Cr.
Introduction to Business/Construction Trades

Provides students entering self-employment or who are currently self employed in the construction trades industry, with a better understanding of federal and state requirements, federal and state tax laws, and recordkeeping requirements.

SBMT 1581 SBM Developing the Business Plan Provides a step-by-step process in the planning and creation of a written business plan.	2 Cr.	and organize the information necessary to complete a timely payroll, generate a payroll, and reports for the business.
SBMT 1591 SBM Financial Projections for Business Plans Provides a step-by-step process in creating cash flow, balance sheet, profit and loss, and sales projections to be included in a written business plan.	1 Cr.	SBMT 2137 Quarterly Payroll Reporting In this course the business owner or manager examines reports required quarterly by federal and state government. Student will gather appropriate data and complete withholding, unemployment, and other appropriate payroll reports as required for their business.
SBMT 2130 Record Keeping In this course the business owner or manager will learn the basics of record keeping with an emphasis on the organization of the chart of accounts, balance sheet, and income statement. The course will also focus on data entry to the accounting system, including revenues, expenses, assets, liabilities, and equity.	3 Cr.	SBMT 2138 Year End Closing In this course the business owner or manager will focus on the year-end closing of the records for accounting, management, and tax purposes. Students will complete year-end closing entries to the record system in the revenue, expense accounts and balance sheet accounts.
SBMT 2131 Asset Management In this course the business owner or manager will learn the proper allocation of assets and the proper balance of assets for a business. The course will also focus on inventory turnover and management as the prime asset for many businesses.	1 Cr.	SBMT 2139 Annual Payroll Reporting In this course the business owner or manager examines reports required quarterly by federal and state government. Students will gather appropriate data and complete withholding, unemployment, and other appropriate payroll reports as required for their business. Prerequisites: SBMT 2136 and SBMT 2137.
SBMT 2132 Inventory Management In this course the business owner or manager will focus on inventory turnover and management in the small business operation.	1 Cr.	SBMT 2170 Technology and Innovation This course covers trends in business communications and electronic technology. The student will explore, identify, and implement business technology applications.
SBMT 2133 A/R Management In this course the business owner or manager will focus on compiling and managing the business's accounts receivable and its impact on cash flow. The student will build different accounts receivable reports and these will be used to determine business policy regarding receivables and cash management.	2 Cr.	SBMT 2240 Organizational Structure In this course the business owner or manager will focus on the characteristics of different organizational structures, including sole proprietorship, s-corps, c-corps, partnerships, and limited liability organizations. Students will study advantages and disadvantages of each to determine the appropriate structure for their business.
SBMT 2134 A/P Management In this course the business owner or manager will focus on compiling and managing the business's accounts payable and its impact on cash flow. The student will build different accounts payable reports and these will be used to determine business policy regarding payables and cash management.	2 Cr.	SBMT 2241 Financial and Tax Planning In this course the business owner or manager will examine the process of financial and tax planning for the business. Emphasis will be placed on maximizing the efficiency of assets and minimizing the impact of taxes on the business and business owner.
SBMT 2135 Reconciliation & Closing In this course the business owner or manager will focus on the reconciliation of various accounts found within the balance sheet and how to close out income, expense, or balance sheet accounts during or at the end of an accounting period.	2 Cr.	SBMT 2242 Insurance & Risk Management In this course the business owner or manager will examine different types of business risk, determine what are manageable risks, determine a risk aversion level, and complete a risk management plan.
SBMT 2136 Payroll Systems In this course the business owner or manager will focus on the creation and maintenance of a payroll system for a small business. The student will gather	3 Cr.	

<p>SBMT 2243 2 Cr. Cost Analysis In this course the business owner or manager will be creating a process for identifying job costs, creating job cost records and reports, and then evaluating the profitability of the job so as to determine future pricing and costing policies.</p>	<p>SBMT 2333 1 Cr. Customer Info Systems In this course the business owner or manager will study different customer feedback systems that allow the business owner or manager to evaluate customer service and if the companies products and/or service are meeting the customers needs and wants.</p>
<p>SBMT 2244 2 Cr. Pro-forma Financial Statements In this course the business owner or manager will identify business costs, produce current profit and loss statement, produce current balance sheet, create budgets, create revenue and expense projections, and create pro-forma balance sheet and profit and loss statements.</p>	<p>SBMT 2334 2 Cr. Customer Service This course is designed to give additional skills to the business owner or manager that improve the customer service offered by the business. The course will focus on creating a customer service plan, training staff to deal with customer service issues, and identifying management procedures to maintain and improve customer service.</p>
<p>SBMT 2251 2 Cr. Developing a Business Plan This course covers the decision making, evaluation, importance and mechanics of writing a business plan.</p>	<p>SBMT 2420 3 Cr. Employee Management In this class the business owner or manager will study and develop systems for recruiting and hiring employees. They will also study the creation of personnel files and manuals, and methods for training new or present employees.</p>
<p>SBMT 2262 3 Cr. Government Regulation & Tax Compliance This course covers government regulations and tax compliance issues that affect the operation of a small business. The student will learn about tax law and government regulations that apply to their business and about the impact these laws and regulations have on the business.</p>	<p>SBMT 2421 2 Cr. Interpersonal Skills This course is designed for the small business owner or manager who wants to improve their human relationship and management skills. The class will focus on improving interpersonal skills of the owner or manager and employee relationship strategies.</p>
<p>SBMT 2300 0.50 Cr. Introduction to Quickbooks for Windows 6.0 This course introduces Quickbooks for Windows 6.0 as a business computerized accounting package.</p>	<p>SBMT 2422 2 Cr. Team Skills This course focuses on building workplace teams identifying and dealing with different work styles that affect team performance. Team dynamics and interactions along with individual issues that affect team effectiveness will be studied, so as to enhance supervisory and leadership skills.</p>
<p>SBMT 2330 2 Cr. Sales and Market Analysis In this course the business owner or manager will study the sales history and/or projected sales for the existing or new business. This course will also include product mix of existing products or services. The student will also study both the existing and future markets for their products and services.</p>	<p>SBMT 2423 2 Cr. Compensation & Benefits This class is designed to guide the business owner in establishing compensation and benefit packages for the employees. It is also designed to meet required federal and state regulation concerning the employment and protection of workers on-the-job. The class will focus on basic benefit options available to the small business owner and government regulations in the area of OSHA, ADA and Right-to-Know legislation.</p>
<p>SBMT 2331 1 Cr. Market Research In this course the business owner or manager will conduct a market research project focused on an area of value to their business. They will learn some of the approaches to finding information and data regarding their business, their industry, and their products. From this the student should be able to search specific business issues, questions, and information.</p>	<p>SBMT 2530 1 Cr. Current Business Issues This course will examine current business issues facing small businesses. Students will examine current economic conditions, as well as, state and federal legislation pending.</p>
<p>SBMT 2332 2 Cr. e-Business Sales In this course the business owner or manager will learn to recognize the opportunities, costs, and risks of e-sales for their business. Students will explore sales options, research e-sales costs, and start-up procedures for conducting e-sales within the business.</p>	<p>SBMT 2531 2 Cr. Business Communications This course is designed to improve communication skills of small business owners or managers. It will</p>

focus on both verbal and written skills for individual or group presentation. Students will be assigned projects using writing and oral presentation skills.

SBMT 2532 **2 Cr.**

Business Calculations

This course is designed to improve the math skills necessary for managing a small business. The class will focus on percentages, ratios, decimal/percentage conversions and the amortization or time value of money. Students will be assigned math projects applicable to the operation of a small business.

SBMT 2534 **1 Cr.**

Stress Management

This class is designed to improve the ability of the business owner to deal with the stress of small business ownership and to achieve the proper balance between work and family. The class will focus on identifying stressors for the owner or manager, factors creating the stress, and strategies for managing work related stress.

SBMT 2600 **0.50 Cr.**

Introduction to Quickbooks

This course covers using Quickbooks Purchases and Vendors.

SBMT 2610 **3 Cr.**

Computerization for Accounting

This course will focus on the basics of record keeping using computerized accounting software. An emphasis is placed on organization of the chart of accounts, data entry and financial statement interpretation.

SBMT 2611 **3 Cr.**

Computerization of Sales & Marketing Information

This class will focus on computerization of sales and marketing information. It will concentrate on entry of sales records, customer demographics and marketing efforts. It will also focus on reports to be generated from these records.

SBMT 2612 **2 Cr.**

Computerization HR Records

This class is designed to develop the skills necessary to establish, run and maintain a computerized human resources record system. It will concentrate on selection and configuration of software, information selection and location, data entry, records and reports, and data verification and protection.

BMT 2675 **2 Cr.**

Computerized Spreadsheets

This course covers the use of spreadsheet software for business applications. The course will focus on setting up, implementing, and maintaining spreadsheet software for students actively engaged in the ownership and/or management of a small business or business start-up.

SBMT 2676 **2 Cr.**

Data Base Management

This course will focus on setting up, implementing, and maintaining spreadsheet software for students actively engaged in the ownership and/or management of a small business or business start-up. This course covers the use of data base management software for business applications.

SBMT 2681 **2 Cr.**

Computerized General Ledger

This course will focus on setting up, implementing, and maintaining a computerized general ledger for students actively engaged in the ownership and/or management of a small business or business start-up. This course covers the process of computerizing business records using computerized accounting software.

SBMT 2682 **1 Cr.**

Computerized Bank Reconciliation

This course covers the application of computerized bank account/general ledger reconciliation. The student will be able to prove bank account cash balances using the selected software package. The course will focus on reconciling the business bank account to the general ledger for students actively engaged in the ownership and/or management of a small business or business start-up.

SBMT 2683 **2 Cr.**

Computerized Accounts Receivable

This course covers the process of computerizing business records using accounts receivable software or as part of a complete software package. The student will be able to produce customer invoices, sales receipts, statements, and reports using selected software. The course will focus on setting up, implementing, and maintaining a computerized accounts receivable system for students actively engaging in the ownership and/or management of a small business or new business start-up.

SBMT 2684 **2 Cr.**

Computerized Accounts Payables

This course covers the process of computerizing business records using accounts payable software or as part of a complete software package. The student will be able to track purchases, pay bills, manage cash flow, and print reports using selected software. The course will focus on setting up, implementing, and maintaining a computerized accounts payable system for students actively engaging in the ownership and/or management of a small business or new business start-up.

SBMT 2685 **2 Cr.**

Computerized Payroll

This course covers the process of computerizing business records using payroll software or as part of a complete software package. The student will be able to calculate payroll, print payroll checks, track and pay tax liabilities, and print reports using selected software. The course will focus on setting up, implementing, and maintaining a computerized payroll system for students

actively engaging in the ownership and/or management of a small business or new business start-up.

SBMT 2686 **2 Cr.**
Computerized Inventory Control

This course covers the process of computerizing business records using inventory control software or as part of a complete software package. The student will be to manage and track inventory using the selected software. The course will focus on setting up, implementing, and maintaining a computerized inventory control system for students actively engaging in the ownership and/or management of a small business or new business start-up.

SBMT 2687 **2 Cr.**
Computerized Sale Order Entry

This course covers the sales entry process in computerizing business records using sales tracking software or as part of a complete software package. The course will focus on setting up, implementing, and maintaining a computerized sales entry and record keeping system for students actively engaging in the ownership and/or management of a small business or new business start-up.

SBMT 2688 **2 Cr.**
Computerized Asset Management

This course covers the asset management process in computerizing business records using asset tracking software or as part of a complete software package. The course will focus on setting up, implementing, and maintaining assets in a computerized record keeping system for students actively engaging in the ownership and/or management of a small business or new business start-up.

SBMT 2691 **1 Cr.**
Computerized Payroll Year End Close

This course covers the year-end payroll closing process using payroll software or as part of a complete software package. The course will focus on reconciling payroll records, compiling and printing records forms and reports, and preparing the system for the following year in for students actively engaging in the ownership and/or management of a small business or new business start-up.

SBMT 2692 **1 Cr.**
Computerized Accounting Year End Close

This course covers the process required to close the accounting system at the end of the fiscal year. The student will be able to reconcile accounting records, post year-end journal entries, and prepare the system for the following year. The course is for students actively engaging in the ownership and/or management of a small business or new business start-up.

SBMT 2693 **2 Cr.**
Computerized Small Business Financial Statement Analysis

Covers the generally accepted business ratios that apply to performance, when compared to generally accepted industry standards. Students will apply these ratios and industry standards using his/her business

financial statements generated from asset management software or a complete accounting package. It will focus on setting up, implementing, and maintaining a computerized accounting system. The course is designed for students actively engaging in the ownership and/or management of a small business or new business start-up.

SBMT 2700 **3 Cr.**
Going into Business

This course covers Quickbooks checking and credit card.

SBMT 2900 **2 Cr.**
Directed Study

This course covers taxes and accountant features.

Sociology (SOC)

SOC 1101 **3 Cr.**

Introduction to Sociology

Introduces the student to basic sociological concepts. Topics include: sociological theory, research, culture, socialization, groups, social stratification, social class, gender, race, and family. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

SOC 1102 **3 Cr.**

Social Problems

Examines sociological approaches to major contemporary problems. Offers students the opportunity to examine: societal impact, process of identification, analysis of causes and exploration of potential solutions. Topics include: crime, social stratification, and domestic policy issues. Prerequisite: SOC 1101 or consent of instructor.

SOC 2210 **3 Cr.**

Marriage and the Family

Reviews historical and cultural perspectives of American family systems. Assesses the current ideals, functions, stresses and trends of the family. Topics include courtship, factors associated with marital success, roles and role expectations, statuses, alternatives to traditional systems, communication, marital dissolution and cross-cultural patterns. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

SOC 2220 **3 Cr.**

Family Life Dynamics

Examines the family, analyzes the dynamics occurring within it, and applies sociological theory to the study of the family. The family will be analyzed using systems, conflict, developmental, structural functional, symbolic interaction and the social exchange theories. Students learn how family life affects individuals by studying family characteristics, roles played, the impact of violence, abuse and addictive behaviors, and the development of healthy family systems. A fictional family (from a contemporary novel) is used to help illustrate the various concepts from the different theoretical perspectives. Evaluation is based in part on an individual analysis of either the student's family or

origin or family of procreation. THIS COURSE IS REQUIRED IN HSER MAJOR.

SOC 2224 3 Cr.

Racial and Ethnic Minorities

Examines the relationship of racial and ethnic minorities to dominant American society. Emphasis will be placed on the African American, American Indian, Hispanic, and Asian cultures. Topics include: prejudice, discrimination, institutionalized racism, ethnocentrism, and segregation. Prerequisite: SOC 1101 or consent of instructor.

SOC 2230 3 Cr.

Juvenile Delinquency

This course looks at the nature of juvenile crime in America, delinquent behavior, crime statistics, and types of crime, crime causation, the process of criminal justice, and prisons and corrections. Prerequisite: SOC 1101.

SOC 2235 1-3 Cr.

Special Topics

Offers a wide range of issues of current interest. This class may be retaken for credit if the topic varies.

SPANISH (SPAN)

SPAN 1101 4 Cr.

Spanish I

Assists students in developing proficiency in listening, speaking, reading and writing Spanish, mastering fundamental grammatical concepts, and integrating the culture of the Spanish-speaking world. The course is designed for students with little or no prior language study. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

SPAN 1102 4 Cr.

Spanish II

Continues to increase proficiency in listening, speaking, reading and writing in Spanish, mastering of more complex grammatical concepts including subjunctive mood, and integrating the culture of the Spanish-speaking world. Prerequisite: SPAN 1101, one-two years of high school Spanish, or consent of instructor.

SPAN 2201 4 Cr.

Spanish III

Provides for a review of grammar and vocabulary study and allows for practice of the more difficult grammatical concepts in Spanish. Interactive activities using authentic text materials, various literary genre, videos in the target culture, thematic cultural units, and written exercises help students to increase proficiency in the four language modalities: listening, speaking, reading and writing. Prerequisite: SPAN 1102, one year of college Spanish, three years of high school Spanish, or consent of instructor.

SPAN 2202 4 Cr.

Spanish IV

Integrates the mastery of structural concepts with the study of authentic text materials on a variety of cultural

topics, various literary genre, and provides for developing proficiency in the four language modalities. Prerequisite: SPAN 2201, three or four years of high school Spanish, or consent of instructor.

SPAN 2235 1 Cr.

Special Topics

Introduces students to topics of special interest incorporating the various modalities of language learning: listening, speaking, reading and writing, and interweaves the culture of the Spanish-speaking community. The course may be retaken for credit as the topics change.

SPEECH (SPCH)

SPCH 1101 3 Cr.

Introduction to Speech

Focuses on elementary speech training aimed at proper public speaking with practice also in extemporaneous speaking and impromptu speaking. Course emphasizes enunciation, voice improvement, organization, clearness of statement, and logical thinking.

SPCH 2210 3 Cr.

Oral Interpretation

Focuses on interpretation of short fiction, poetry, drama and children's literature for oral presentation. The student will examine selected texts and incorporate body and voice control techniques in performance.

STUDY SKILLS (STSK)

STSK 0091 1 Cr.

Basic Math Skills

Provides individualized assistance to students who need to improve their basic math skills. The course covers fractions, decimals, metric, percents, ratio and proportions, and solving for "x".

STSK 0092 2 Cr.

Basic Skills Development

Offers individualized assistance to students desiring basic skills necessary for success in college.

STSK 0095 2 Cr.

Reading Improvement

Provides improvement of reading skills for students underprepared for college level reading. The focus is on basic comprehension with additional instruction in vocabulary and word recognition. Placement by ACCUPLACER. test score.

STSK 1104 2 Cr.

Efficient Reading

Offers students the opportunity to improve academic performance by developing higher levels of comprehension. Emphasis is on gaining knowledge from college textbooks. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

STSK 1108 2 Cr.

Improvement of Study Skills

Provides students the knowledge and techniques necessary for effective study in college. Topics include

time management, taking lecture notes, textbook learning, compiling and organizing for remembering, and test-taking techniques. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

THEATER (THTR)

THTR 1101 3 Cr.

Introduction to Theater

Introduces theater as an art form, discusses text analysis and examines elements of dramatic construction. This course reviews major movements in theater from Greek to modern theater. It is intended to give students a background in theater history, analyzing texts and bringing a text to performance. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

THTR 1102 3 Cr.

Acting Basics

Emphasizes voice, body and concentration along with attention to character analysis and development.

THTR 2122 3 Cr.

Introduction to Film

Reviews the technical, historical, and dramatic elements of film making. It is intended to give students a more sophisticated perspective of this unique art form. One of the following is a prerequisite: Thtr 1101, ENGL 1105, ENGL 2243, MCOM 1120, or Art 1120.

THTR 2235 1-3 Cr.

Special Topics

Offers a wide range of issues of current interest. This class may be retaken for credit if the topic varies.

TRANSPORTATION (TRAB)

TRAB 1101 5 Cr.

Autobody Repair Overview

Students will learn the basic techniques for oxy-acetylene welding, wire feed welding, sheet metal repair, working with plastic fillers, as well as a vehicle's body construction, part alignment, and component operation.

TRAB 1102 5 Cr.

Autobody Refinishing Overview

Students will learn the basic techniques of sanding and general preparation for complete refinishing of a vehicle. Included will be feather edging, masking, priming, and paint-gun handling techniques.

TRAB 1200 4 Cr.

Collision Repair Welding

This course covers safety, setup of oxyacetylene and mig welding equipment. It covers different welds, positions and materials. Also covered are plastic welders, materials and techniques. Plasma arc cutting and oxyacetylene cutting methods are also covered.

TRAB 1206 4 Cr.

Fiberglass and Plastic Repairs

This course covers the safe use of body fillers, repairs, sectioning, or replacement of fiberglass parts. It teaches students how to identify and correctly repair interior and exterior automotive pieces. Students will be taught how to use the new adhesives for attaching panels.

TRAB 1210 3 Cr.

Collision Repair Metal Technology

Course covers sheet metal repair corrosion protection and rust repair. Tools used in collision repair will also be covered. Vehicle nomenclature will also be covered.

TRAB 1215 4 Cr.

Body Lab I

Students work in a lab setting performing goals and objectives learned in prior courses.

TRAB 1220 6 Cr.

Collision Repair Refinishing

This course covers undercoats and topcoats used today. It covers preparation procedures for refinishing; covers 2 tone paint jobs, pinstriping, and some custom finishes. Intro to color is also covered.

TRAB 1225 3 Cr.

Assorted Collision Technology

Course covers glass--both stationary and movable. Covers the removal and replacement of different types of glass. Covers auto reconditioning, paint guns and air supply systems.

TRAB 1232 5 Cr.

Body Lab II

This course covers goals and objectives learned in prior courses, but in a lab setting.

TRAB 1235 1 Cr.

General Night Lab

Students in this course will work on various projects in a lab situation. They will utilize knowledge gained in previous courses.

TRAB 1240 1 Cr.

Intro to Auto Body

This course covers basic shop safety, hand tools, power tools and environmental rules and regulations.

TRAB 2001 2 Cr.

General Night Lab

Students in this course will work on various projects in a lab situation. They will utilize knowledge gained in previous courses.

TRAB 2100 3 Cr.

Color Matching & Blending/Spot Repairs

Teaches students the identification, color mismatch correction, and blending of single-stage, basecoat-clearcoats, and tri-coats found on today's vehicles.

TRAB 2105 Repair/Replacement of Unibody and Frame Components Students will learn the safe and proper alignment, repair, or replacement procedures for unibody and conventional frame parts, components, body shells, and sections.	4 Cr.	TRAB 2170 Specialty Lab VI Students in this course will work on various projects in a lab situation. They will utilize knowledge gained in previous courses.	6 Cr.
TRAB 2111 Auto Body Mechanical Repairs Students learn procedures for the replacement of damaged mechanical components as well as four wheel suspension alignment and how it relates to the total repair of a damaged vehicle.	5 Cr.	TRAB 2210 Metal Parts Fabrication This course covers the theory and techniques involved in the fabrication of needed body parts that can be made from steel or aluminum, which may not be readily available from outside sources.	3 Cr.
TRAB 2112 Auto Body Electrical and Advanced System Repairs Students learn procedures for the diagnosis, repair, and replacement of automotive electrical components well as a variety of advanced mechanical, electrical and safety system repairs.	2 Cr.	TRAB 2215 Modified Vehicle Construction I This course covers the modifications that can be performed on a vehicle's body, frame, suspension, and drivetrain beyond OEM specifications and appearance.	6 Cr.
TRAB 2115 Estimating Repairs Students learn the analysis, identification, and calculation of vehicle damage in hand written form utilizing collision estimating manuals. There will also be an introduction to computer generated estimates.	2 Cr.	TRAB 2220 Specialty Vehicle Welding This course covers the different welding techniques involved in joining, both light and heavy gauge steel, aluminum, and stainless steel.	2 Cr.
TRAB 2120 Body Shop Management A variety of shop management procedures are covered including job costing, time management, repair orders, payroll employee/employer relations, customer relations, and communication skills.	1 Cr.	TRAB 2225 Specialty Visual Enhancements This course covers the design, layout, and application of custom vinyl graphics. Basic Powder Coating processes as well as polishing aluminum parts will also be covered. Working closely with the customer to bring to reality their ideas and wishes is also a large part of the studies.	4 Cr.
TRAB 2130 Custom Paint Layout & Application Students will learn the designing of new paint schemes as well as the repair of damaged custom painted vehicles.	3 Cr.	TRAB 2230 Modified Vehicle Construction II This course is a continuation of TRAB 2215 and will also cover the utilization and installation of various aftermarket add-on body accessories.	5 Cr.
TRAB 2150 Specialty Lab II Students in this will work on various projects in a lab situation. They will utilize knowledge gained in previous courses.	2 Cr.	TRAB 2235 Basic Auto Upholstery & Trim This course covers basic automotive upholstery and trim design, construction, and installation.	2 Cr.
TRAB 2155 Specialty Lab III Students in this course will work on various projects in a lab situation. They will utilize knowledge gained in previous courses.	3 Cr.	TRAB 2236 Industry Collaboration This course consists of the actual observation and interaction with various industries, personnel and facilities that provide the student with an understanding of how diverse their industry really is.	1 Cr.
TRAB 2160 Specialty Lab IV Students in this will work on various projects in a lab situation. They will utilize knowledge gained in previous courses.	4 Cr.	TRAB 2237 Industry Interaction This course consists of the actual observation and interaction with various industries, personnel and facilities that provide the student with an understanding of how diverse their industry really is.	1 Cr.
TRAB 2165 Introduction to Special Interest Vehicles Students will be introduced to the construction of specialty vehicles.	4 Cr.	POWER SPORTS (TRPS) TRPS 1100 Engine Technology This course introduces the student to the design, construction, and operating principles of two and four	4 Cr.

cycle engines, including servicing, tune-up, trouble-shooting and repair.

TRPS 1105 3 Cr.
Fuel Systems I

The student will learn operating principles of carburetor systems, including troubleshooting, service and repair.

TRPS 1110 3 Cr.
Fuel Systems II

This course covers operating principles of fuel injection systems including trouble-shooting, service and repair.

TRPS 1120 2 Cr.
Shop Operations

Students study and use service manuals, technical information, tools and measuring devices, vehicle setup and pre-delivery, shop safety.

TRPS 1130 3 Cr.
Ignition Systems

The student will learn the design and operating principles of ignition systems, including diagnosing, service and repair.

TRPS 1112 3 Cr.
Electrical Systems

This course provides instruction on vehicle electrical systems, including starting and charging, trouble-shooting, service and repair.

TRPS 1115 3 Cr.
Power Train

The student will learn operating principles of vehicle power trains including trouble-shooting, service and repair.

TRPS 1125 3 Cr.
Onboard Computers

This course covers the operating principles of onboard computer systems, sensors and controls, including diagnosing, service and repair.

TRPS 1135 2 Cr.
Brakes

This course covers the operating principles of brake systems, including diagnosing, service and repair.

TRPS 1140 1 Cr.
Business Operations

The student will study daily business operations including relationships with the customer, the manager and fellow employees.

TRPS 1145 3 Cr.
Steering and Suspension

The student will learn the principles of steering and suspension including troubleshooting, service and repair.

WELDING (WELD)

WELD 1100 1 Cr.
Introduction to Welding Theory, Concepts and Practices

This course covers the basic introduction to the theory of Gas Metal Arc Welding (GMAW) (MIG); maintenance, safety, setup/shutdown practices; and fundamental blueprint reading as it pertains to welding industry.

WELD 1105 1 Cr.
Introduction to Welding Practical Application

This course covers the basic introduction to hands-on practices of Gas Metal Arc Welding (GMAW) (MIG) as it pertains to the welding industry.

WELD 1110 2 Cr.
Intermediate Welding

This course provides the student with more advanced welding theory and introduces the student to basic oxy-acetylene practices and they apply to the welding industry.

WELD 1115 1 Cr.
Advanced Welding

This course provides the student with more advanced blueprint reading and Gas Metal Arc Welding (GMAW) (MIG) practices as they apply to the welding industry.

WELD 1121 1 Cr.
Supervised Welding Internship Experience

This course gives students on-the-job experience in welding, grinding, assembling, making parts for metal fabrication items, and using specific blueprint tolerances.

WELD 1122 2 Cr.
Supervised Welding Internship Experience

This course gives students on-the-job experience in welding, grinding, assembling, making parts for metal fabrication items, and using specific blueprint tolerances.

WELD 1123 3 Cr.
Supervised Welding Internship Experience

This course gives students on-the-job experience in welding, grinding, assembling, making parts for metal fabrication items, and using specific blueprint tolerances.

WELD 1124 4 Cr.
Supervised Welding Internship Experience

This course gives students on-the-job experience in welding, grinding, assembling, making parts for metal fabrication items, and using specific blueprint tolerances.

ADMISSIONS INFORMATION

Minnesota West Community and Technical College maintains an open door policy for admissions to the college. If you have graduated from high school or have obtained a General Education Development (GED) Certificate which would qualify for the high school equivalency certificate, you are eligible for admission.

If you do not have a high school diploma or General Education Development Certificate, you may be admitted at the discretion of the College. Some students may be required to first complete certain developmental courses before enrollment is granted.

Admission to Minnesota West does not guarantee admission to college-level courses nor to specific programs. New students are required to take an assessment evaluation in Reading, Writing, and Math.

When applying for admission, an application, application fee, and official transcripts are required. Official high school, GED and college transcripts must be submitted to the campus Registration Office. Departments may have additional requirements for admission to their programs.

The campus Registration Office provides services pertaining to application for admissions, reciprocity forms, international students, high school enrollments, applications for programs, transcripts received from previous institutions, information for prospective students and tours of the campus.

Students may apply to programs which lead to:

- Certificates
- Diplomas
- Associate in Arts degree
- Associate in Science degree
- Associate in Applied Science degree

Students may be classified as non-diploma or non-degree seeking applicants.

- Part-time students
- Concurrent high school students
- English as a Second Language student (ESL)

If students have attended another college, an official sealed copy of a transcript must be sent directly to the campus Registration Office. Students should submit an information or unofficial copy of their transcript to use in meetings with counselors, advisors, or instructors.

Application Fee

A one-time \$20 non-refundable application fee must be sent with the application form. The application fee is non-refundable except when the college denies enrollment due to college determined program requirements or course size limitations, or when there is a program closure. This fee is required; and should be attached to the admissions application form.

The application fee does not pertain to PSEO students or High School Contract for Training programs. Non-degree seeking students are not required to pay the application fee until they register for the ninth credit.

To Apply to the College

To apply, you must complete the Minnesota State Colleges and Universities Universal Application form. This form can be obtained by contacting the Minnesota West Central Information Center at 1-800-658-2330, any Minnesota West campus, your local high school counselor, or you may apply online at www.mnwest.edu.

Admission of Transfer Students

Transfer students must submit the application form, application fee and official transcripts from all institutions previously attended directly to the campus admissions office. Students may also be required to provide a high school transcript or GED test scores. (See section on transfer policy information for additional details.)

Admission of International Students

An international student is defined to be a non-refugee, non-immigrant holding a valid student visa.

International Student Requirements:

- Are expected to possess certain standards of proficiency in the use of the English language and provide evidence of that proficiency to the College.
- Must submit completed application form along with the \$20 non-refundable application fee in U.S. dollars.
- Must submit a record from the school(s) that were attended for the last four years of education.
- Must submit a notarized copy of diploma.
- Must have a TOEFL scores (Test of English as a Foreign Language) or another indicator of English proficiency. TOEFL score must be 500 or above for admission. TOEFL tests may be secured from the American Consulate in the student's country or from the Educational Testing Service, Princeton, New Jersey.
- Must provide the college with the name, address, and phone number of a contact person in the student's home country and in the

United States (if possible) for emergency notification.

- Must submit a detailed financial statement giving the following information:
 - How college expenses will be paid.
 - Source of financial assistance. If listing more than one source of assistance, amounts received from each source.
- Must provide the college with a certified statement of financial resources from the student's bank or the U.S. Embassy.
- Must provide a Certified Bank Draft in the amount of five thousand dollars (\$5,000) for deposit in student's account with Minnesota West.

All required materials and information must be submitted to the campus Student Services Office four months prior to anticipated entrance to Minnesota West. Minnesota West does not provide financial aid for International students.

Admissions for New Immigrants

Potential students who are new immigrants must be able to demonstrate English language proficiency before enrolling at Minnesota West. All students must take the placement tests including new immigrants. Results of those tests will determine placement in either the regular English sequence or the developmental English courses.

Admission for Senior Citizens

A resident of Minnesota who is 62 years of age or older is entitled to enroll in a credit or non-credit open enrollment course at Minnesota West on a space available basis for an administrative fee of \$15.00 per credit. A Minnesota resident who is 62 years of age or older is entitled to audit a credit or non-credit open enrollment course on a space available basis without payment of an administrative fee. A Minnesota resident who is 62 years of age or older and enrolled in a closed enrollment contract for training or professional continuing education course must pay the regular tuition charge for the course. In all cases, senior citizens are required to pay for any materials, personal property and service charges for the course.

Readmission to the College

Students who have left the college for one or more semesters may re-enter Minnesota West as returning students. Students who have been out of Minnesota West Community and Technical College for five (5) or more years must resubmit an application and any transcripts since enrolled at Minnesota West.

Fresh Start Readmission

Any former Minnesota West student who has not attended the College during the previous five years and who had less than a "C" cumulative grade point average of 2.0, or less than 67% completion rate may invoke the "Fresh Start" standards by petitioning the Campus CEO. This petition must be completed during the student's first semester of return. Any grade below a "C" will be bracketed []. These grades will not apply to academic GPA, but will be used for calculating SAP, GPA, and completion percentage for financial aid purposes. The student's record will reflect all original courses attempted by the student. The student who re-enters the College under this plan must complete at least 15 additional credits with the letter grades of A, B, C, or D. To be eligible for graduation the student must meet all the requirements of his/her program/major and have at least a 2.0 G.P.A. or above completion rate.

Special Student Status

Special students are all students not working on a degree program and not accepted into the College. Special students are frequently part-time students. A student may earn no more than eight credits without making application to the College.

- Special student registration should be completed prior to the first day of scheduled classes each term.
- Special students are encouraged to register with a counselor/advisor to assist them with their program.
- All credits earned in the special student classification will be maintained as a permanent record of the College and will be considered for application toward a diploma or degree program upon admission to the College.
- New students enrolling for eight or more credits and special students who have accumulated eight or more credits are required to pay the \$20 application fee.

Orientation

An orientation session for students is held on each campus. It allows the student to get acquainted with the campus and available services. Students will receive information on advising and topics related to registration and academic and student life at Minnesota West. Student orientation/advising sessions are held for new students prior to the beginning of each term. It is strongly recommended that all new students attend an orientation session. Contact the campus for orientation dates and time.

FINANCIAL AID INFORMATION

Minnesota West Community & Technical College provides financial aid information to future and enrolled students. The college seeks to provide all students the opportunity to continue their education by assisting students who need financial aid to meet their college expenses. The financial aid office is located in the Student Service area on each campus. Financial Aid is available in the form of grants, work study, and student loans. All recipients must be making satisfactory academic progress to continue to receive aid. Students intending to enroll in the fall are encouraged to apply for financial aid in the previous spring or summer. Students should apply for financial aid at least two months before they start school.

Financial Aid Application Process

The Free Application for Federal Student Aid (FAFSA) is the beginning of the application process for all financial aid at Minnesota West Community and Technical College. It may be accessed on-line at the Minnesota West web site: www.mnwest.edu or at the federal FAFSA site: www.fafsa.ed.gov.

Students should use the Minnesota West Community and Technical College Code #005263 when completing the FAFSA. **The Minnesota State Grant has a different deadline. A student must have the FAFSA completed and received by the Federal Processor by the 30th day of the semester for which they wish to receive the state grant.**

The college has a limited amount of Federal Perkins loan funds, Federal Supplemental Educational Opportunity Grants, and Federal Work-Study funds. These three federal programs are awarded on a first come first served basis, so it is best to apply for financial aid as soon as possible.

For more detailed Financial Aid information including 'How to Get Started' with Financial Aid' can be located on the Minnesota West web site at: www.mnwest.edu/financial-aid/

Satisfactory Progress

Students receiving financial aid at Minnesota West Community and Technical College must be making satisfactory progress toward their degree or diploma. Following each semester, a student's academic progress will be reviewed. Students who are not making satisfactory academic progress after one semester will be placed on probation. Students with two consecutive semesters not making satisfactory progress will have their aid eligibility suspended. Students are allowed to appeal their suspension status. All students applying for financial aid will be provided with the college Academic and Financial Aid Satisfactory Progress Standards. (See student handbook for details) Any policy guidelines

or changes set forth by the Minnesota State Colleges and University system will take precedence over current Minnesota West policy. The policy can be found at:

www.mnwest.edu/minnesota-west-policies/.

Veterans Benefits

Minnesota West is approved by the Minnesota Approving Agency for Veteran's Educational Benefits. Applications for veteran educational benefits may be obtained by contacting the registration staff at the campus you plan to attend. Students planning to attend online only should contact the registration at the Worthington campus for veteran assistance. Additional information is available by contacting the Veterans Administration at 800-827-1000 or visit the Department of Veteran Affairs web site at: www.gibill.va.gov.

Tuition and Fees

Tuition and fees for credit bearing courses at Minnesota West Community and Technical College are established by the Minnesota State Colleges and Universities Board of Trustees. Future and current students are encouraged to visit the college web site for the most current tuition and fees information at:

www.mnwest.edu/business-office/tuition-fees/.

STUDENT SERVICES

Student services at Minnesota West Community and Technical College includes the areas of admissions, registration, financial aid, and student counseling/advising. Individuals in this area provide information and services to future and current students pertaining to application for admission, reciprocity, PSEO, contract for training, financial aid, counseling/advising, academic records and transcripts, minority services, student housing, student identification card, child care referral, and students with disabilities,. Student Services is the student's one stop for questions and assistance at each campus location. Online students should direct questions to their advisor or utilize the Ask Us button located at: www.mnwest.edu.

STUDENT ACTIVITIES

Minnesota West Community and Technical College provides opportunities for student growth through extracurricular activities. Activities enrich higher education for students by providing both educational and social events. By becoming involved in activities such as music, drama, student government, clubs and organizations, cultural diversity programs, and both intercollegiate and intramural athletics, a student will share in the ownership of such programs and experience a rewarding connection to the college. Check with Student Services to see which activities are available on that campus.

Intercollegiate Athletics

The College has a proud tradition of excellence in both men's and woman's intercollegiate athletics. Athletic achievement is considered an important part of education, teaching personal discipline, individual and group commitment, teamwork, and honor. Minnesota West is a member of the Minnesota Community College Conference (MCCC) and the National Junior College Athletic Association (NJCAA) and abides by the rules of the NJCAA. Students from all campuses are encouraged to participate but travel to the Worthington campus for practice and events will be required for most sporting activities.

Woman's Programs

Basketball
Golf
Softball
Volleyball

Men's Programs

Basketball
Baseball
Football
Wrestling
Golf

Recreational Sports

Intramural and club sports include activities, such as flag football, softball, ping pong, bowling, tug-a-war, Madden Tournament, ice fishing tournament, co-ed volleyball, and Frisbee golf. Contact your campus Student Services for more information.

FACULTY CREDENTIALS

Minnesota West Community and Technical College is proud of its faculty and all they do to make the learning experience enjoyable and rewarding for students. The college faculty meets the requirements required to teach in the Minnesota State Colleges and Universities System. A complete listing of faculty and their credentials is located at:

www.mnwest.edu/human-resources/faculty-credentials/

Minnesota West Community and Technical College advises all current and future students to visit the college website for the most current college information. The printed catalog is a two-year document, therefore, the most up-to-date information can be found at: www.mnwest.edu.

DIRECTORY OF COLLEGE INFORMATION:

All of the information listed below is available in the Student Handbook located online at www.mnwest.edu/minnesota-west-student-handbook/

1. Student Calendar
2. Academic Programs
3. Academic Standards
 - Alternative Methods of Earning Credit
 - Advanced Placement
 - College Level Examination Program
 - Competency Based Education (CBE)
 - Course Test Out
 - School to Work Articulated Courses
 - International Baccalaureate (IB) Credit
 - Credit Limitation
 - Concurrent Enrollment
 - Dean's List and Honors
 - Fresh Start
 - Grade Appeal Policy
 - Grading System
 - Graduation with Honors
 - Pass/Fail Policy
 - Post-secondary Enrollment Options (PSEO)
 - Satisfactory Academic Progress
 - Transfer
 - Transfer Credit
4. Admissions
5. Ambassador Program
6. Associations and Committees
 - Statewide Student Association
 - Campus Student Association
 - Student Tuition Stipends
7. Athletic Programs
8. Code of Conduct
9. Health and Safety
 - Bombs and Bomb Threats
 - Campus Emergencies
 - Campus Safety Report
 - Communicable Diseases
 - Critical Incident Plan
 - Emergency Procedures
 - Safety and Accidents
 - Pandemic: Avian Flu
 - Safety Glasses
 - Tobacco, Alcohol, or other Controlled Substances
 - Weapons Policy
 - Weather and Emergency Closing or Cancellation Procedure
 - Workplace Violence
10. Online Student Responsibilities
11. Personal and Professional Responsibility
 - Computer Services
 - Computer Software Policy
 - Email Password
 - Internet Use
 - Student Employees



- Telephone Use
 - Wireless Devices
12. Policies
- Affirmative Action/Nondiscrimination
 - General Harassment and Violence
13. Registration, Tuition, and Fees <http://www.mnwest.edu/business-office/tuition-fees/>
- Tuition, fees, reciprocity, and senior citizen rates
 - Payment Procedures
 - Active Duty with Armed Forces
 - Appeal
 - Deferments
 - Deferment of Tuition and Fees
 - Dropped Added/Classes
 - Late Fee
 - Online Payment of Tuition and Fees
 - Payment Plan
 - Refund of Federal Funds
 - Refund Policy
 - Waivers
 - Withdrawal
14. Student Compliance/Grievance
15. Student Data Privacy
16. Student Rights and Responsibilities
17. Student Services
- Academic Student Assessment
 - Access/Parking
 - Advisor/Advisee-Counselor/Counselee
 - Background Study
 - Bookstore
 - Change of Address
 - Child Care
 - Clubs and Organizations
 - Consumer Information/Student Right to Know
 - Disability Services
 - Financial Aid
 - Health Services
 - Identification Card
 - Immunization Policy
 - Information Collection
 - Insurance
 - Intercollegiate Athletics
 - International Students
 - Job Placement
 - Library and Academic Resource Center
 - Media
 - Orientation
18. College Terminology
19. Contacts for Student Services



Minnesota West Community & Technical College Administration

Ronald Wood.....President

B.A. Western Maryland College
M.A. Washington University in St. Louis
Ph.D. University of Maryland

Diane GraberCollege Provost

B.A. Yankton College
M.S. Mankato State University
Ed.D. University of South Dakota

**Jeffery WilliamsonVice President of
Instruction**

B.S. South Dakota State University
M.Ed. South Dakota State University
Ed.D. University of South Dakota

Lori Voss..... Vice President of Administration

B.S. Southwest State University

Al Bruderie Dean of Management Programs

B.S. University of Minnesota
M.S. University of Minnesota

**Gary Gillin..... Dean of Communication &
Enrollment**

Diploma Minnesota West Community & Technical
College
A.A. Minnesota West Community & Technical
College
B.A. University of Sioux Falls

**Dawn RegnierDirector of Customized
Training Services**

B.S. University of Minnesota
M.S. Mankato State University

Marlene Fischer.....Worthington Campus CEO

B.S. St. Cloud State University
M.S. St. Cloud State University
Ed.D., University of Minnesota

Diana Fliss Business Manager

Diploma Minnesota West Community &
Technical College

**Mike Fury ... Worthington Director of Students/
Women's Athletic Director/Coaching**

A.A. Worthington Community College
B.A. Hamline University
M. Ed. College of St. Scholastica

Dawn Gordon Director of Nursing

B.S. Augustana College
M.B.A. Colorado Technical University

Jim Grove .. Jackson Campus CEO/Counselor

B.A. University of Northern Iowa
M.S. Mankato State University

**Dennis Hampel Dean of Career and
Technical Programs**

MN State Board Technical License

Jeff Harms Director of Facilities

**John Joosten..... Granite Falls Campus CEO/
Counselor**

B.S. Mankato State University
M.S. University of Southern California

Karen Miller Human Resource Director
Diploma Minnesota West Community &
Technical College

**Jackie OtkinInterim Associate Director of
Nursing**

B.S. South Dakota State University

Barbara ReindersAdmissions Coordinator

A.A. Iowa Central Community College
B.A. University of Iowa
M.A. University of Iowa

John Roos..... Director of Technology

B.A. University of Iowa

Marcia Rose Director of Financial Aid

B.S.W. Northern Michigan University

Crystal Strouth Registrar

B.A. Westmar College

**Chris Schafer Director of LARC
Interim Pipestone Campus CEO**

B.A. University of Northern Iowa
M.S. University of Hawaii

Rebecca Weber.....Canby Campus Manager

B.S. Southwest Minnesota State University
M.S. South Dakota State University

Minnesota West Community & Technical College Faculty

Anne Aby.....History/Political Science

B.A. Carleton College,
M.A. University of Chicago

Agnes Alsgaard-Lien..... Art

B.F.A. University of South Dakota
M.S.S. University of South Dakota

Bruce Amundson Biology

A.A. Worthington Community College
B.A. St. Cloud State University
B.S. University of Minnesota
M.S. University of Minnesota

Ronald Arneson.....Machine Tool

Diploma Minnesota West Community &
Technical College

Robert Arp..... Construction Electrician

Diploma Minnesota West Community &
Technical College

Cheryl Avenel-Navara ... Counseling/Sociology

B.S. State University of New York College
at Brockport
M.S. State University of New York College
at Brockport

Paul Bartz..... Farm Business Management

B.S. University of Minnesota

- Leslie Bauman..... Accounting**
Diploma Minnesota West Community & Technical College
B.S. Bemidji State University
- Chad Benda Farm Management**
B.S. South Dakota State University
- Galen Benton.....Music**
B.S. Northwest Missouri State
M.A. Drake University
- Philip Berg Lamb and Wool Management**
B.S. South Dakota State University
M.S. North Dakota State University
- Cathy BlairSociology**
A.S. Minnesota West Community & Technical College
B.S. Minnesota State University, Mankato
M.S. Minnesota State University, Mankato
- Delynn Bresson.....Auto Body Mechanics**
Diploma Minnesota West Community & Technical College
- James Brewers.....Construction Electrician**
A.A.S. Minnesota West Community & Technical College
- Daniel Carlson..... Agricultural Equipment Mechanics**
Diploma Minnesota West Community & Technical College
- Duane Carrow Renewable Energy**
Diploma Minnesota West Community & Technical College
- Michael Caskey Lamb & Wool Management**
B.S. University of Minnesota
- Vaughn Corwin.....Appliance, Heating/AC**
Diploma Ridgewater Community & Technical College
Diploma Minnesota West Community & Technical College
- Don Craig..... Electrical Linework**
Diploma Minnesota West Community & Technical College
A.A. Minnesota State University, Mankato
- John Dahle.....Carpentry**
B.S. Winona State University
- Richard DalrympleMathematics/Physics**
B.S. University of Kansas
M.S. University of Missouri at Rolla
- Jerry DeuschleConstruction Electrician**
B.S. Southwest Minnesota State University
- Lila DeWitt Practical Nursing**
Diploma Sioux Valley School of Nursing
- Mike Dierks Farm Business Management**
B.S. South Dakota State University
- Judy DrownConstruction Electrician**
Diploma Minnesota West Community & Technical College
- Janice EibensteinerBiology**
B.S. Bowling Green State University
B.S. Minnesota State University, Mankato
M.S. Minnesota State University, Mankato
PhD University of Minnesota
- Tom Erickson..... Powerline Technology**
B.S. Saint Cloud State University
- James Fischer Fluid Power Technician**
A.A.S. Minnesota West Community & Technical College
A.A. Ridgewater, BES St. Cloud State University
- Erika Freking..... Practical Nursing**
Diploma Minnesota West Community & Technical College
B.A. Southwest State University
- Dale GarbersWind Energy**
Diploma Minnesota West Community & Technical College
- Harry Gerdes..... Farm Business Management**
B.S. University of Minnesota
- Peter Girard..... Diesel Fuel Injection Specialist**
A.A.S. Minnesota West Community & Technical College
- Peg GorterCosmetology**
Diploma Stewart School of Hairstyling
- Larry Griffin..... Farm Business Management**
B.S. North Dakota State University
- Donna Hage Practical Nursing**
B.S.N. Minnesota State University, Mankato
- Nancy Jo Hambleton Health**
B.A. St. Olaf College
M.S. St. Cloud State University
- Rosalie Hayenga..... Biology/Coaching**
B.S. Minnesota State University, Moorhead
M.S. St. Cloud State University
- Justin Heckenlaible Computer Science/Coaching**
B.S. Dakota State University
M.S. University of South Dakota
- Mark HoldenLaw Enforcement**
B.S. Mankato State University
M.S. Saint Mary's University
- Jerome Jansen Counseling/Geography/ Men's Athletic Director**
A.A. Itasca State Community College
B.A. University of Minnesota
M.S. Minnesota State University, Mankato
- Pam Jensen Computer Support**
B.S. Minnesota State in Moorhead
- Katherine Janssen Computer Science**
B.A. Augustana College
M.S. Bemidji State University
- Marcia Johnson Librarian**
B.A. Southwest State University
M.S. Minnesota State University, Mankato
- Steve Juenemann English/Literature**
B.A. College of St. Scholastica
M.A. South Dakota State University
M.F.A. Moorhead State
- Douglas Kleeberger Auto Mechanics**
B.A. Pillsbury Baptist Bible College
M.A. Central Baptist Theological Seminary
- Charles Knollenberg Auto Mechanics**
MN State Board Technical License

Duane Krueger ...Small Business Management
Diploma St. Cloud Technical College

Jacqueline Lage Cosmetology
Diploma Ridgewater College

Henrietta Le Lucht Spanish
A.A. Minnesota West Community & Technical College
B.A. Augustana College
M.S. University of South Dakota

Rolf Mahlberg Agriculture
B.S. University of Minnesota
M.S. University of Minnesota

Ryan Mahlberg Biotechnology
B.S. Minnesota State University, Mankato

William Manor..... Robotic Technology
Diploma Chippewa Valley Technical College
A.S. College of DuPage

David Matthews..... Mathematics
B.S. University of Nebraska
M.S. University of Nebraska

Mary Jane Mardesen..... English/Speech and Theater
B.S. Northeast Missouri State University
M.A. University of New York

Sandi Mead Librarian
B.S. Mankato State University, Mankato
M.S. Mankato State University, Mankato

Rita Miller Medical Lab Technician
B.S. South Dakota State University
M.S. University of North Dakota

Paul Mohns..... Auto Body
Diploma Minnesota West Community & Technical College
B.S. Minnesota State University, Mankato

Debra Munsterman Small Business Management
B.A. Southwest State University
M.S. Southwest State University

Teresa Noyes..... Dental Assisting
Diploma Minnesota West Community & Technical College
A.A.S. Minnesota West Community & Technical College
B.A. University of Minnesota, Crookston

Alan O'Neil..... English
A.A. Minnesota West Community & Technical College
B.A. Augustana College
M.A. Minnesota State University, Mankato

Luke Olson Carpentry
Diploma, Minnesota West Community & Technical College

Sheri Olson..... Practical Nursing
Diploma Southeast AVTI,
Diploma Nettleton College
B.S.N. South Dakota State University
M.Ed. South Dakota State University

Troy Otto Farm Business Management
A.A. Minnesota West Community & Technical College
B.S. South Dakota State University

Michael Parks Law Enforcement
B.A. Metro State, M.A. Concordia

Terri Pelzel Administrative Support/Networking Specialist
Diploma Minnesota West Community & Technical College
B.S. Colorado Technical Institute

Deb Peterson Speech
B.A. University of Minnesota
M.A. Colorado State University

Karsten Piper English
B.A. Bethel College, M.A. Boston College

Carissa Pohlen Massage Therapy
Certificate Aveda Institute

Brenda Pomeranke..... Practical Nursing
A.S. Rochester Community & Technical College
B.A. Metropolitan State University

Rebecca Potts..... English/Philosophy
B.S. University of South Dakota
M.A. University of South Dakota

Daniel Prust D.D.S. Dental Assistant
M.S. South Dakota State University
D.D.S. Ohio State University

Robert Purcell... Physical Education/Coaching
B.S. Moorhead State University
B.A. Moorhead State University
M.S. North Dakota State University

Jeffrey Rain..... Biology
A.A. Vermilion Community College
B.S. Minnesota State University, Mankato
M.A. Bemidji State University

Vong Rathsachack Psychology
B.S. Colorado Technical University
M.A. North American Baptist Seminary

Ed Reinders Power Sports
A.A. Iowa Lakes Community College
B.A. Buena Vista University

Laine Rieger... Child Care/Guidance/Education
B.A. Arizona State University
M.S. Southwest Minnesota State University

Robert Roesler.... Farm Business Management
B.S. University of Minnesota
M. Ed. University of Minnesota

Daniel Roos..... English
A.A. Minnesota West Community & Technical College
B.A. Moorhead State
M.A. University of Wisconsin

Terry Rotschafer..... Accounting/Business
B.S. Minnesota State University, Mankato
M.B.A. Minnesota State University, Mankato
M.S. University of Wisconsin

Dennis Schroeder Farm Business Management

B.S. South Dakota State University
M.A. University of Minnesota

Shannon Schmitz..... Massage Therapy

B.A. Moorhead State University
M.A. Saint Mary's University

Steve Schultz..... Chemistry

B.A. Carleton College
Ph.D. California Institute of Technology

James Smieja Computer Science

B.A. University of Minnesota
M.S. Minnesota State University, Mankato

Lisa Smith..... Nursing

B.S. South Dakota State University

Krayton Stenzel..... Business and Business Management

B.S. Minnesota State University, Mankato
B.S. Minnesota State University, Mankato
M.B.A. Minnesota State University, Mankato

James Stout..... Plumbing

B.A. Winona State

Pam Sukalski..... Librarian

B.A. Southwest Marshall State University
M.A. Colorado State University

Judy Tebben..... Administrative Support

B.A. Southwest Minnesota State University
A.A. Ridgewater College

Mark Temple Auto Mechanics

Diploma Alexandria Technical College
A.A.S. Minnesota West Community & Technical College

Serena Totzke-Johnson..... EMS

Diploma Iowa Lake Community College
Diploma Minnesota West Community & Technical College

Ruth Van Heukelom Nursing

A.D.N. Indian Hills Community College
B.S.N. Graceland College
M.S. South Dakota State University

Diane Vangsness Practical Nursing

A.A. Presentation College
B.A. Metropolitan State University
M.A. College of St. Scholastica

Beth VanOrman .. Psychology/Human Services

A.A. Worthington Community College
B.A. Augustana College
M.S. Ed University of Wisconsin, Stout

Cliff Vrieze..... Farm Business Management

B.S. University of Minnesota
M.S. University of Minnesota

Allan Wacha Auto Body Mechanics

A.A.S. North Dakota State College of Science

Dennis Weeks Mathematics

B.S. South Dakota State University
M.A. University South Dakota

Diane Wells Bookkeeping/ Administrative Support

B.A. Wartburg College
M.Ed. College of St. Scholastica

Kayla Westra..... English

B.S. Mankato State University
M.S. Utah State University

Lou Ann Williamson..... Reading

B.S. South Dakota State University
B.Ed. Dakota State University
M.S. Southwest State University

Karen Wiltrout..... Nursing

Diploma Minnesota West Community & Technical College
B.S.N. South Dakota State University

LaVonne Youngs Administrative Support/ Medical Secretarial Occupations

B.S. Southwest State University
M.S. Minnesota State University, Mankato

Notes
